DOCUMENT RESUME

ED 422 083 PS 026 728

AUTHOR Stout, James W.; White, Lisa C.; Alexander, Tammy
TITLE Oregon School-Based Health Centers: A Follow-Up Report.
SPONS AGENCY Robert Wood Johnson Foundation, Princeton, NJ.; Oregon State Dept. of Human Resources, Portland. Health Div.
PUB DATE 1996-03-00
NOTE 94p.
PUB TYPE Reports - Research (143) -- Tests/Questionnaires (160)
EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Academic Achievement; Child Health; Emotional Problems; *Health Promotion; *High School Students; High Schools; *School Health Services; Sex Differences; Sexuality; Student Attitudes; *Student Behavior
IDENTIFIERS *Oregon; Risk Taking Behavior

ABSTRACT

A follow-up study evaluated the impact of School-Based Health Centers (SBHC) on health behaviors (including emotional and reproductive health and substance abuse), school attendance and academic performance, and health service use. The study compared these behaviors between 1990 and 1992 in several Oregon high schools with and without SBHCs. Findings indicated that health risk behaviors are already prevalent in ninth grade, implying that primary prevention needs to be initiated at a younger age. Significant gender differences were found in mental health indicators, with females reporting consistently worse emotional health. These clinics serve students with the greatest need, and those students seeking mental health or reproductive health services have worse self-esteem, higher levels of distress and more suicidal thoughts and attempts than their counterparts who seek these services at outside providers. The survey revealed high levels of satisfaction with the SBHC service, and that almost half of students have used the service. In one of the three sites studied, the SBHC was associated with global improvements in health behaviors, including decreases in substance use and sexual activity and improvements in reproductive health attitudes and behaviors. (A copy of the Adolescent Health Survey instrument and charts of the resulting statistics are appended.) (JPB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED 422 083

OREGON SCHOOL-BASED HEALTH CENTERS

A FOLLOW-UP REPORT

MARCH 1996

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY
David Lane
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

James W. Stout, MD, MPH[1]
University of Washington
Children's Hospital and Medical Center at Odessa Brown Children's Clinic
Seattle, Washington

Lisa C. White
Children's Hospital and Medical Center of Odessa Brown Children's Clinic
Seattle Washington

Tammy Alexander, MEd
Oregon Health Division
Portland, Oregon

PS 026728

OREGON'S SCHOOL-BASED HEALTH CENTERS:

A FOLLOW-UP REPORT

March, 1996

James W. Stout, MD, MPH

University of Washington

Children's Hospital and Medical Center at Odessa Brown Children's Clinic

Seattle, Washington

Lisa C. White

Children's Hospital and Medical Center at Odessa Brown Children's Clinic

Seattle, Washington

Tammy Alexander, M.Ed.

Oregon Health Division

Portland, Oregon

(503) 731-4016
FAX (503) 731-4083
TDD-Nonvoice (503) 732-4031

Oregon

DEPARTMENT OF
HUMAN
RESOURCES

HEALTH DIVISION

May 14, 1996

Dear colleague

The Oregon Health Division is happy to provide the School-Based Health Center Follow-Up Report to you. It is a combined effort of many individuals and organizations committed to evaluating school-based health centers.

The challenge of evaluating school-based health centers is great. The Follow-Up Report not only addresses the survey results but discusses evaluation strategies relevant to School-Based Health Centers.

The question is often asked "Are school-based health centers effective?" The answer is not simple. Yes, certainly centers provide age appropriate comprehensive health care generally half of the student body in their schools. One third of students often have limited access to health care. But, the answers are much more complex. More importantly, the questions need reframing. This report begins to address some of the harder issues of school-based health care evaluation.

For further copies, questions, or comment, please contact the Oregon Health Division, Center for Child and Family Health, Child and Adolescent Health Section, 503-731-4021.

Sincerely,

Donna Clark

Donna L. Clark, RN, MN
Assistant Administrator
Center for Child and Family Health

John A. Kitzhaber
Governor

800 NE Oregon Street # 21
Portland, OR 97232-2162
(503) 731-4030 Emergency
(503) 252-7978 TDD
Emergency

24-26 (Rev. 12-94)

Table of Contents

Acknowledgments ii

Executive Summary 1

Introduction and Background 3

Frequency of Risk Behaviors 5

School-Based Health Center Service Use and Satisfaction 11

Mental Health Service Use Among All Students 14

Reproductive Health Service Use 17

Impact 20

Appendix I 40

Appendix II 56

Appendix III 57

Appendix IV 63

References 75

Acknowledgments

Oregon's School-Based Health Centers: ***A Follow-Up Report*** is the result of the efforts of many people. First and foremost are the participating school districts, the local staff and students of the selected schools, and the local health departments. In addition, special thanks go to Allen Cheadle and Lynn Steele for their contributions to the project.

The project was funded by the Robert Wood Johnson Foundation and the Oregon Health Division, Department of Human Resources. Technical and advisory support was provided by the Center for Health Studies and Center for Health Promotion at Group Health Cooperative of Puget Sound, and the School of Public Health at the University of Washington. The views expressed herein are those of the authors, and may not represent those of the agencies acknowledged here.

EXECUTIVE SUMMARY

This report analyzes the impact of School-Based Health Centers (SBHC) on health behaviors and health service use by comparing these behaviors between 1990 and 1992 in several Oregon high schools with and without SBHCs.

Based on our findings among all students at all of the study schools, health risk behaviors are already prevalent in ninth grade, implying that primary prevention needs to be initiated at a younger age. Furthermore, we found significant gender differences in mental health indicators for all variables studied at all grade levels, with females reporting consistently worse emotional health.

It is evident that these clinics serve students with the greatest need, especially those who appear to have the worst emotional health. Those students seeking mental health or reproductive health services at the SBHC have worse self-esteem, higher levels of distress and more suicidal thoughts and attempts than their counterparts who seek these services at outside providers.

Our survey reveals high levels of satisfaction with the SBHC service. Almost half of the students have used the service.

In one of the three sites studied in the impact analysis, the SBHC was associated with global improvements in health behaviors. At the SBHC school in this study site, substance use and sexual activity decreased, and reproductive health attitudes and behaviors improved. This clinic also had the strongest local support.

SBHCs are treatment, not prevention, oriented. The visit agenda is directed by the client who presents at the clinic seeking help with an existing problem, not for assistance in preventing a behavior. Furthermore, SBHCs in this study face considerable restrictions on the type of reproductive health services they can provide, and work with funding levels below national averages for SBHCs. This health care delivery model is just one component used to address the complex needs

of adolescent health, and cannot be expected to single-handedly prevent or change adolescent behaviors. It is clear, though, that they offer a valuable service to students who need them.

Future SBHC evaluation should move beyond the pursuit of "hard" outcomes, such as the health impact of this service, and respond to the evolving need of the SBHC movement. More appropriate measures for future evaluation might include the following:

- Does clinical practice meet an appropriate standard of care?
- Are the clients satisfied with this service?
- Is the program cost efficient and serving a large proportion of youth?

INTRODUCTION AND BACKGROUND

In 1985, the Oregon State Legislature added a line item in their human services budget to create a School-Based Health Center (SBHC) program. Funding was initially appropriated for four clinics, which were opened in various parts of the state in 1986. That year, the Multnomah County Commissioners passed similar legislation enabling four additional clinics to open their doors in the greater Portland area. The funding for these programs and the number of schools with health clinics expanded (although not steadily) between 1986 and 1989.

In 1990, this SBHC evaluation began. The purpose of this evaluation was to assess the impact of the SBHC on health behaviors and health service use. We did this by comparing health behavior and health service use between 1990 and 1992 at high schools with and without SBHCs.

Ballot Measure 5, a property tax limitation initiative, was also passed in 1990, resulting in funding reductions for all human services including the SBHC program. Funding for SBHCs has depended on the governor's budget and the legislative process. In the 1991-1993 legislative session, there was a cutback in the total budget package. SBHCs had to decrease hours and services. In the 1993-1995 sessions, after testimony from parents, students, administrators, advisory members and data analysis staff, the session approved funding that restored the budget to the 1989-1991 levels.

STUDY DESIGN

In early 1990, a collaborative study* was launched to evaluate the impact of the SBHC program on the health of students served by these clinics.

We employed a prospective observational study design with cross-sectional sampling of students in nine schools. Students in participating schools completed an Adolescent Health Survey in the fall of 1990 (Baseline) and again in the fall of 1992 (Follow-Up). The selection of participating schools was based upon geographic location, demographic comparability and the presence or absence of a school-based health center. These schools were situated in different locations in Oregon representing both

* A collaboration of the University of Washington Robert Wood Johnson Clinical Scholars Program and the Oregon Health Division

urban and rural communities. Two of these schools had established SBHCs, which had been open for at least one full year at the time of the 1990 Baseline Survey. Three of the schools had new clinics, which had opened within five school months of the Baseline Survey, or which were about to open. The sample also included four comparison schools that were chosen because of their regional proximity and demographic comparability with the clinic schools. These are identified in this report as "control" schools. In total, these nine schools had a combined student enrollment of 7,244, of which 83% (6,000) completed the survey.

The primary data collection instrument was an anonymous and confidential (no identifiers) Adolescent Health Survey (Appendix V). This machine-readable survey was administered by teachers with administrative support. Passive parental consent was required; that is, parents returned a written refusal form or called the school if they did not wish their child to participate in the survey. This consent mechanism has been used in similar school surveys and allows high participation levels. The survey included 88 questions taken from existing national and regional adolescent health questionnaires, as well as questions developed specifically for Oregon's program. Questions were designed for a high school population and addressed the following areas: **1)** health service utilization (including the use and perception of school-based health center programs); **2)** emotional health (self-esteem, distress, suicidal thoughts or attempts); **3)** reproductive health (history of sexual intercourse, use of birth control); **4)** substance use (tobacco, alcohol, marijuana, cocaine); and **5)** school attendance and academic performance. Please see Appendix II for the definition of these variables.

Data collection activity also included a provider survey, which consisted of structured telephone interviews with SBHC staff in Spring, 1993. The survey items collected information on the clinic hours of operation, physical plant, mechanism of access, staffing profile, budget, advisory board, institutional relationships, referral sources, educational activities, practice constraints, health service delivery, other local efforts and referral sources.

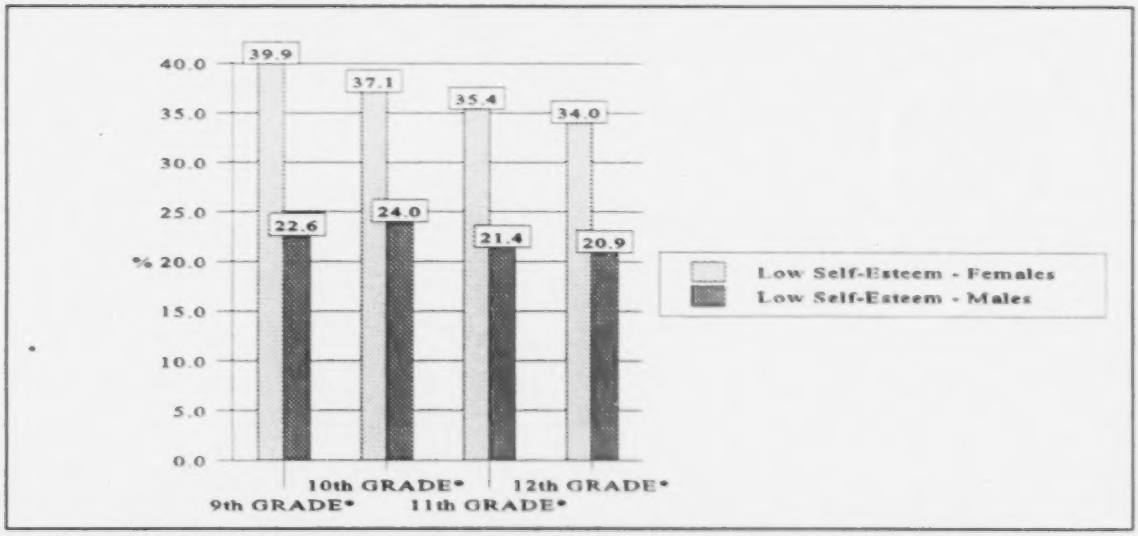
I. FREQUENCY OF RISK BEHAVIORS

This first analysis describes the frequency of indicators of well-being and health risk behaviors among the 6,000 students from all nine schools in 1992. This information is arranged into four categories: emotional health, substance use, reproductive health, and academic performance and school attendance. These data are displayed graphically in the body of the text, and in tabular form in Appendix III.

Emotional Health

A marked proportion of ninth grade females have low self-esteem compared to the rest of the study population (Figure 1). Almost twice as many females have low self-esteem compared to males, which holds true at all grade levels. Conversely, the percentage of males with high self-esteem far outnumbers that of females at all grade levels. Self-esteem improves slightly with age for both genders.

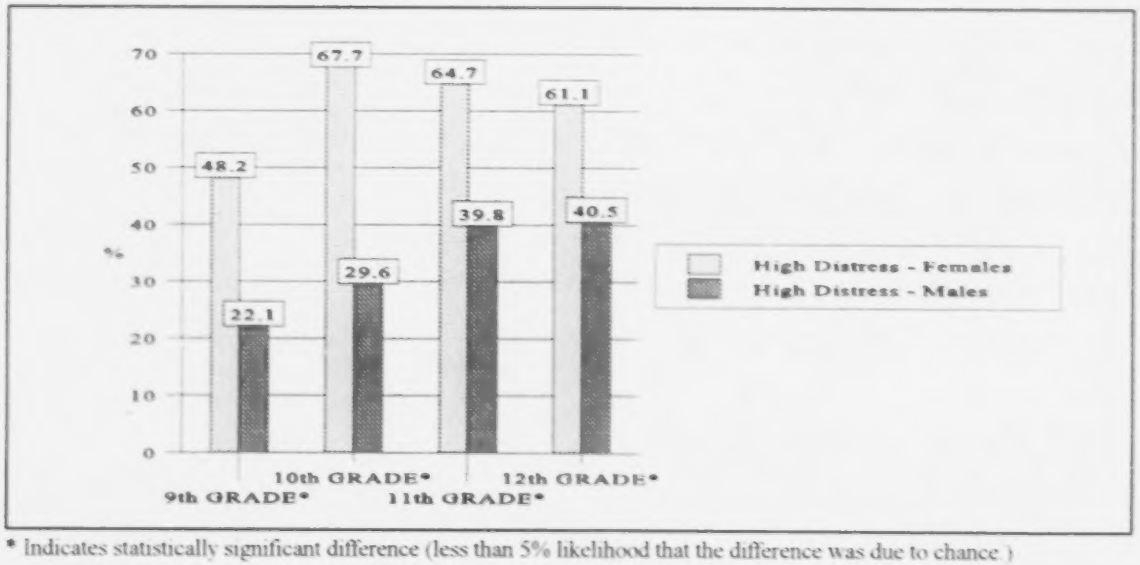
Figure 1: PERCENT WITH LOW SELF-ESTEEM
by Gender and Grade



* Indicates statistically significant difference (less than 5% likelihood that the difference was due to chance.)

The percent of students reporting high distress increases with age, more so among males than females (Figure 2). The gender difference is again striking -- females report far more distress than males. This gender difference is greatest among younger students.

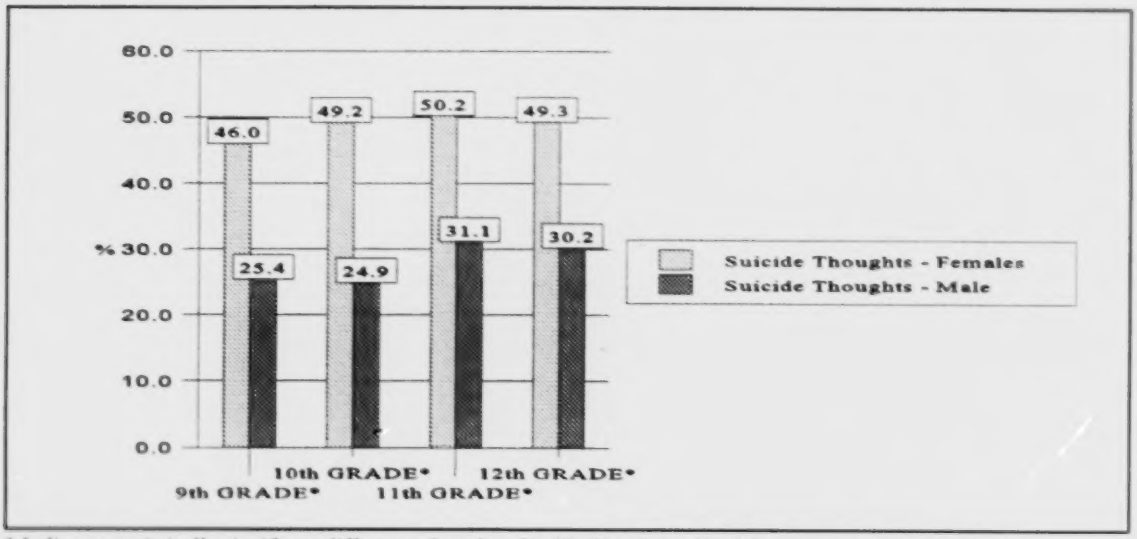
Figure 2: PERCENT IN HIGH DISTRESS
by Gender and Grade



* Indicates statistically significant difference (less than 5% likelihood that the difference was due to chance.)

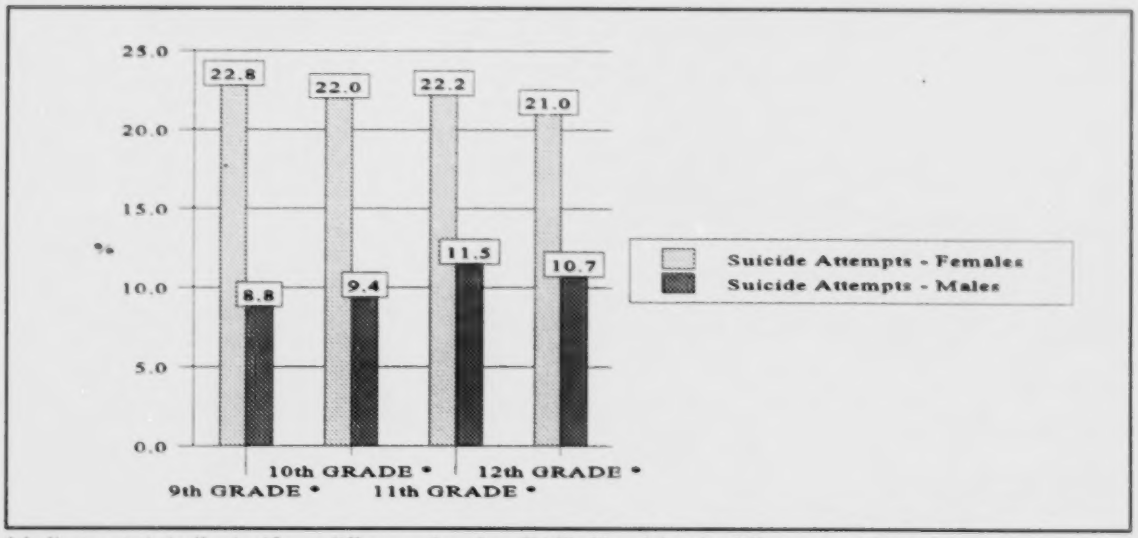
Our most dramatic indicators of emotional well-being, suicide thoughts and attempts, stay virtually the same with age for females (Figures 3 and 4). Suicide thoughts appear to increase slightly with age among males.

Figure 3: PERCENT SUICIDE THOUGHTS
by Gender and Grade



* Indicates statistically significant difference (less than 5% likelihood that the difference was due to chance.)

Figure 4: PERCENT SUICIDE ATTEMPTS
by Gender and Grade

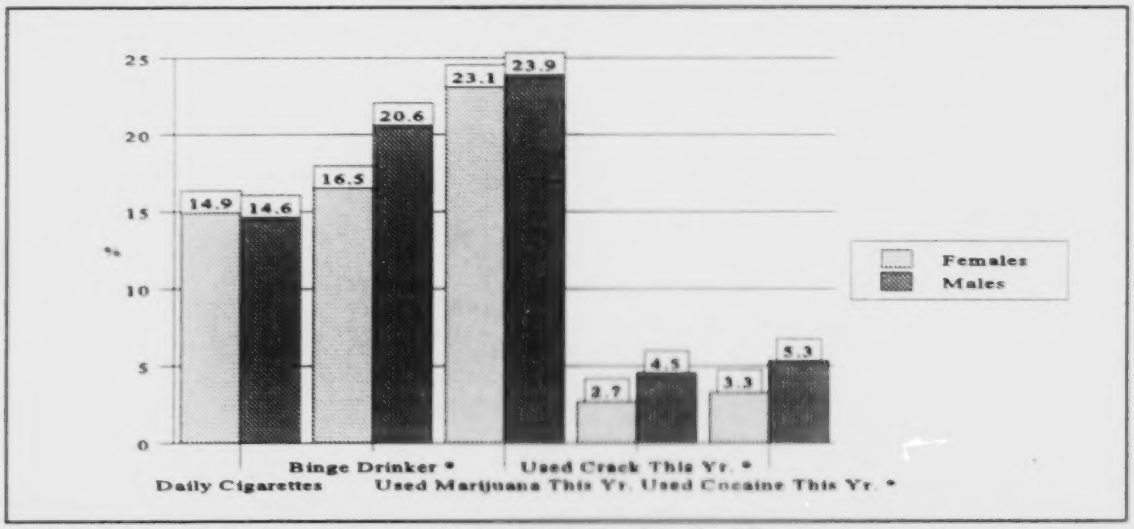


* Indicates statistically significant difference (less than 5% likelihood that the difference was due to chance.)

Substance Use

Males engage in significantly more binge drinking, crack use and cocaine use than females (Figure 5). Cigarette smoking (Figure 6) and marijuana use are very similar between genders at all grade levels. For cigarette smoking, binge drinking (Figure 7), and marijuana use, the frequency of use increases with age. The frequency remains relatively constant for crack and cocaine use across age groups.

Figure 5: SUBSTANCE ABUSE
by Gender and Grade



* Indicates statistically significant difference (less than 5% likelihood that the difference was due to chance.)

Figure 6: PERCENT DAILY CIGARETTE SMOKER
By Gender and Grade

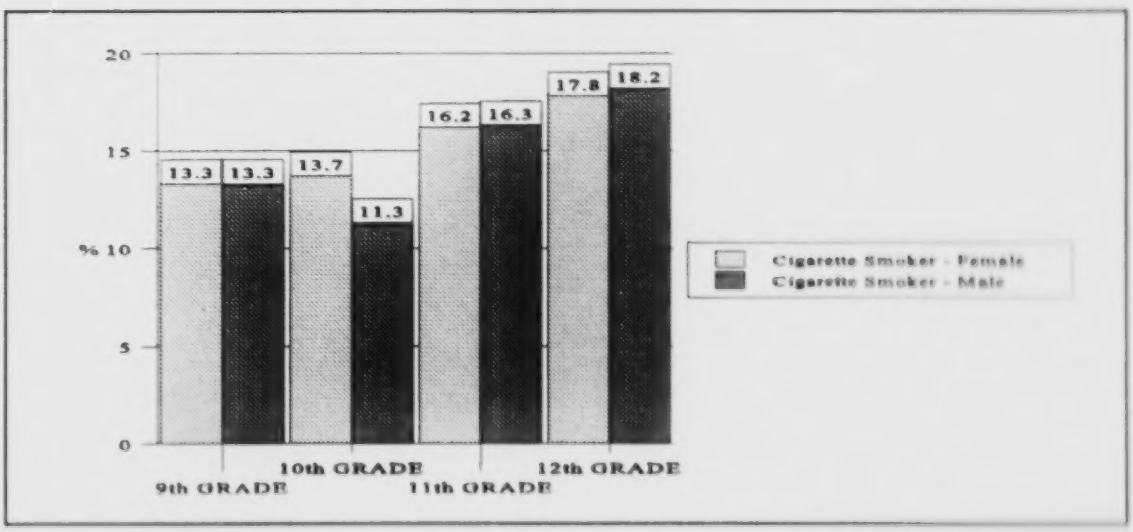
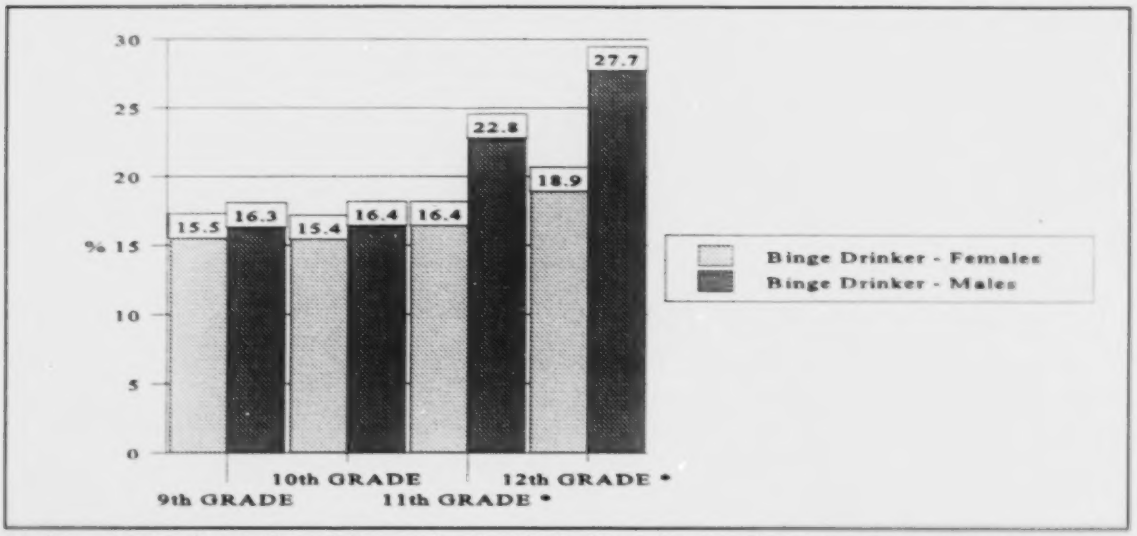


Figure 7: PERCENT BINGE DRINKERS
By Gender and Grade

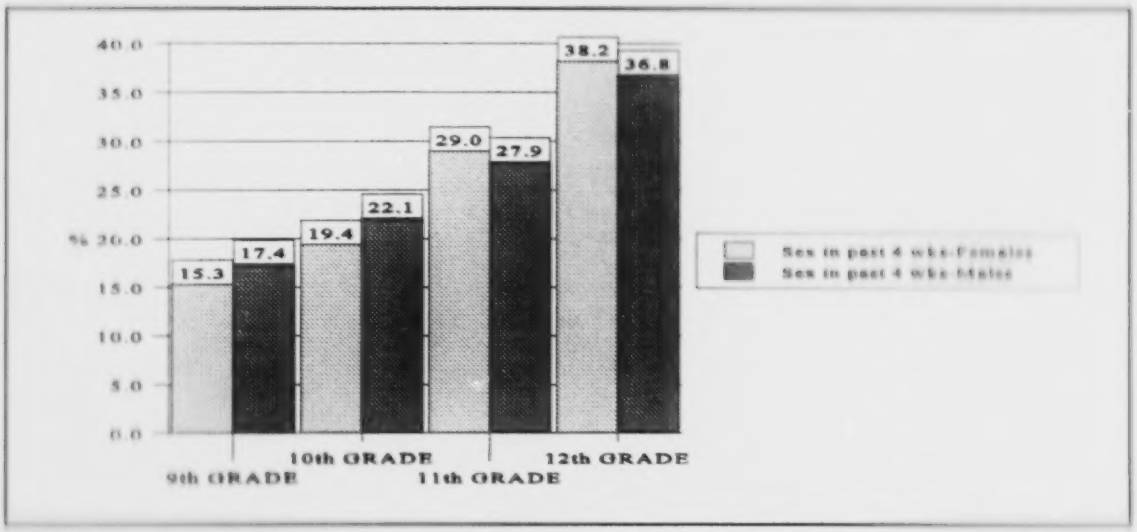


* Indicates statistically significant difference (less than 5% likelihood that the difference was due to chance.)

Reproductive Health

There are no significant differences at any grade level between males and females for current sexual activity (Figure 8). Significantly more males than females report ever having sex in both the ninth and tenth grades, which implies that males probably become sexually active at a younger age.

Figure 8: PERCENT CURRENTLY SEXUALLY ACTIVE
By Gender and Grade



No significant difference between the genders appear in the use of birth control. Older females report increased "regular use" of birth control. This trend is also reflected in males' responses, to a lesser degree.

Academic Performance and School Attendance

Females are consistently and significantly more likely to maintain a Grade Point Average (GPA) of B or better. After ninth grade, females are significantly more likely to miss school due to illness. Males are slightly more likely to skip class.

Discussion

In summary, there are significant gender differences in mental health indicators for all variables studied at all grade levels. It is clear from these data that the origin of this gender difference precedes ninth grade.

According to a 1993 American Association of University Women study, Shortchanging Girls, Shortchanging America, "Girls aged eight and nine are confident, assertive, and feel authoritative about themselves."[1] As girls and boys enter adolescence, they both experience a loss of self-esteem, with females showing a dramatically greater loss. "The sharpest drops in self-esteem occur in the years between elementary school and middle school."[2] Fifty-five percent of Caucasian elementary school girls report that they are "happy with the way I am," but by middle school the percentage drops to 29%. Among African-American girls, the percentage drops from 65 to 59 during these years, and from 68 to 54 among Hispanic girls.[3] The report also shows that the gender gap widens as they get older.[4] Another study has shown that low self-esteem is often associated with depression and may contribute to suicidal thoughts or behavior.[5]

More than a third of ninth graders are already sexually active, which means that birth control and related issues need to be addressed earlier. These findings are consistent with the Oregon 1993 Youth Risk Behavior Survey. Among sexually active students, 27% report first intercourse at age 14 or younger.[6] Furthermore, ninth graders, especially females, report the lowest regular use of birth control, which puts them at high risk for pregnancy.[7]

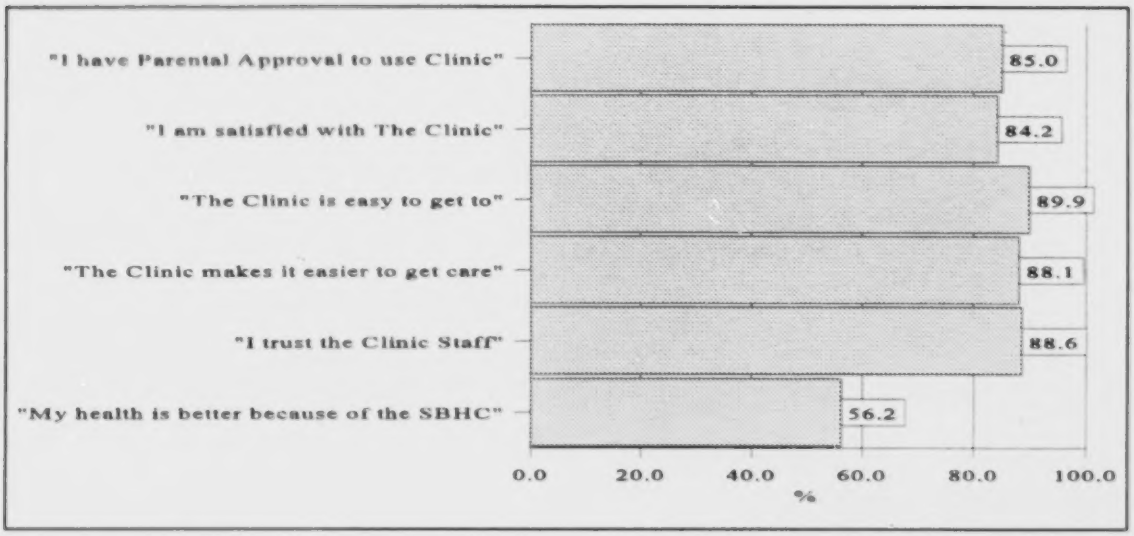
The need among adolescents for mental health services is well accepted[8] and well described in the second analysis of this report (page 14), and SBHCs consistently have demonstrated an important role in providing these services.[9] In fact, SBHCs have long been viewed as a primary prevention strategy for many of the problems adolescents experience. This survey was given early in the school year, which means that these reported activities have their roots in earlier experiences. Based upon these Follow-Up Survey results, students initiated these problem behaviors and emotional issues before they were exposed to the SBHC. Primary prevention of many health problems requires avoiding the initiation of unhealthy behaviors and supporting more resilient, healthy choices and behaviors.

II. SCHOOL-BASED HEALTH CENTER SERVICE USE AND SATISFACTION

This analysis examined 3667 participating students' responses from the 1991 (Follow-Up) Survey in five schools with SBHCs. We will first describe students' use and satisfaction with the service. Next, we will compare the problem behaviors and emotional issues of students seeking mental health and reproductive health services at the SBHC to students seeking services elsewhere.

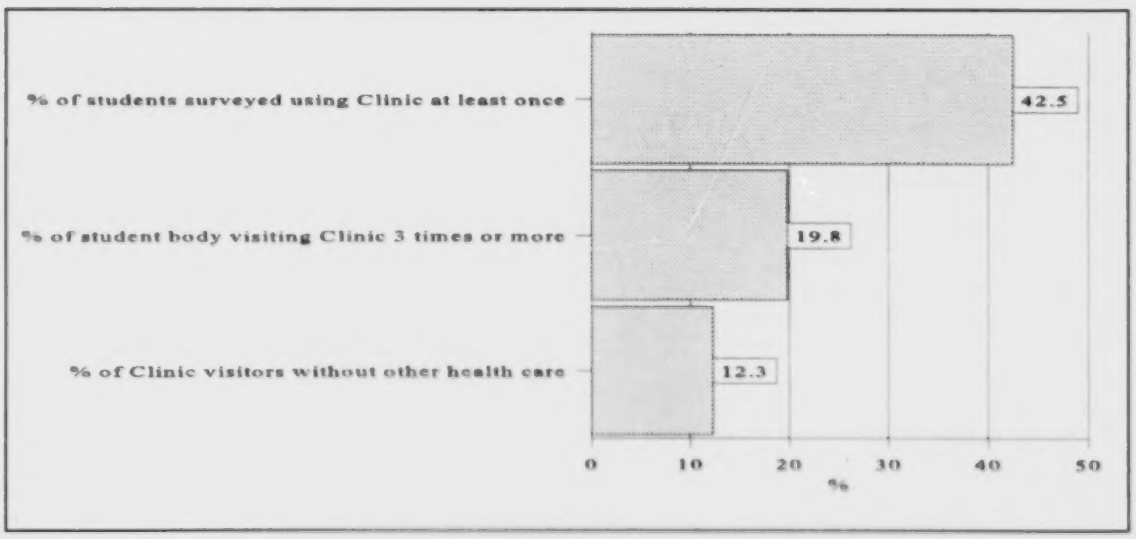
Almost half of the students surveyed had used the SBHC at least once. One fifth of the entire student body have been to the clinic three or more times. Satisfaction with the service among the students who use it is high. Among clinic users, nearly 90% trust the clinic staff and agree that the SBHC makes it easier to get health care. One-half of clinic users report that their health is better because of the SBHC. Among all students, nearly 90% feel that the clinic is easy to get to, and are satisfied with the SBHC. Eighty-five percent report parental approval for the use of the SBHC (Figures 9 and 10).

Figure 9: PERCENT OF CLINIC USERS
Who Agree with the Following Statements



When visitors were asked why they used the service, the most frequent response was because it is easy to get to (53.7%). Importantly, over ten percent of clinic visitors indicate that they have no other place to go for health care.

Figure 10: PERCENT MEASURES OF CLINIC USE



Overall, the percentage of students reporting participation in health education given by the SBHC staff was 14.2% in 1992. Since 1992 there has been a substantial increase in health education in the classroom by SBHC staff. Health education is an integral part of each visit to the SBHC. This increase reflects the ongoing integration of the SBHC into the school environment, increases in professional staff development related to health promotion topics, and an overall commitment and emphasis from the centers to implement classroom health promotion. At the time of the survey, six percent or fewer of the students said they had participated in health education by the SBHC staff concerning family life or sex education, AIDS prevention, smoking prevention, and drug and alcohol abuse prevention. It is likely that the number of students reporting participation in health education is under-represented due to students' perception of what constitutes health education.

IIa. MENTAL HEALTH SERVICE USE AMONG ALL STUDENTS

We were interested in discovering whether the students using the SBHC had different health risks than students using other sources of care. We were especially curious about any differences between those groups of students who used mental health and reproductive health services. This analysis (IIa) explores the relationship between users of mental health services; the next (IIb) repeats the analysis for reproductive health services. We first compared the frequency of health risk behaviors and emotional issues among students who visited the SBHC with students who visited an outside provider.

Table I compares the emotional health, substance use, sexual activity and school performance of students according to whether they had reported a mental health visit in the last year. There are four possibilities for a student's visit report: a visit to the SBHC only; a visit to an outside provider only; a visit to both places; or no visit. This analysis focuses on the comparison between SBHC users and outside provider users (columns 1 and 2 of Table I). Mental health visits were defined as visits to discuss family problems, problems with friends, emotional distress (depression, anger, stress), sexual issues (e.g. peer pressure, sexual abuse), school problems, or alcohol and other drug problems. Only those comparisons where there are significant differences are displayed graphically.

TABLE I: COMPARISON OF PROBLEM BEHAVIORS AND EMOTIONAL ISSUES AMONG ALL STUDENTS, ACCORDING TO MENTAL HEALTH SERVICE USE

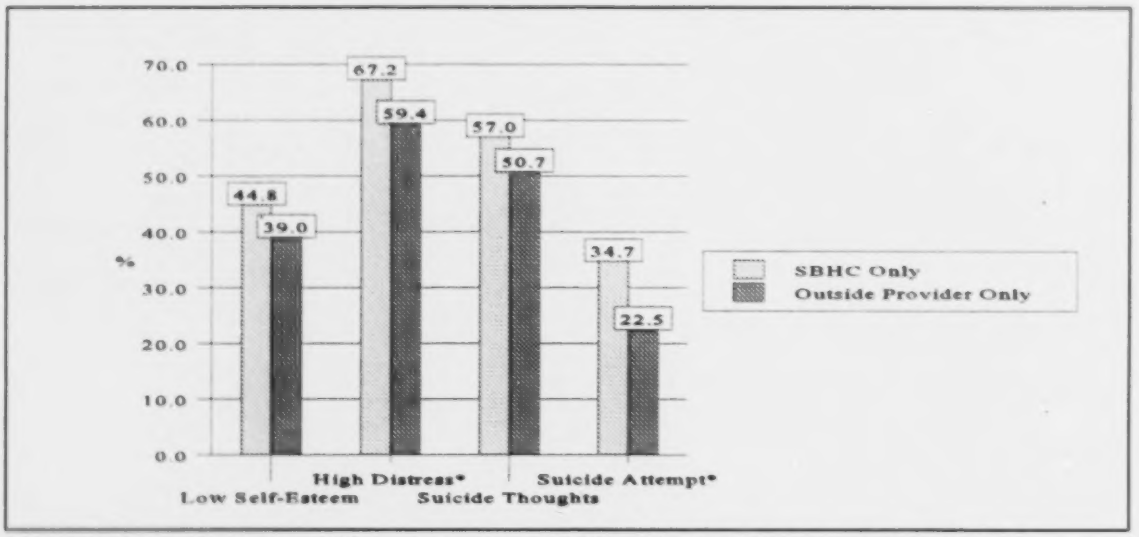
	SBHC Only	Outside Provider Only	Both	Neither
Overall % reporting a visit	11.1	13.6	5.7	69.6
Emotional Health Indicators	SBHC Only	Outside Provider Only	Both	Neither
% Low Self-Esteem	44.8 †	39.0	41.3	24.0
% High Distress	67.2 *	59.4 *	57.6	40.9
% Thoughts of Suicide	57.0	50.7	54.1	31.4
% Attempted Suicide	34.7 *	22.5 *	41.4	10.3
Substance Use Risk Behaviors	SBHC Only	Outside Provider Only	Both	Neither
% Who smoke cigarettes	23.8	20.0	28.7	11.1
% Who binge drink	26.1	22.8	27.7	15.9
% Who use marijuana	33.7	29.7	39.0	19.1
Sexual Activity	SBHC Only	Outside Provider Only	Both	Neither
% Who have ever had sex	62.4	55.2	70.9	42.3
% Who've had sex in the past 4 weeks	34.2	31.3	41.9	21.7
Academic/Attendance Indicator	SBHC Only	Outside Provider Only	Both	Neither
% with B or better GPA	55.4	61.2	55.2	68.7
% Who missed school due to illness	47.2	47.7	52.9	35.6
% Who missed school because skipped or cut	24.5	27.1	35.2	17.4

† For example, among students who have used mental health services at the SBHC only, 44.8% report low self-esteem.

* Indicates a p value of < 0.05

Significant differences were found only among the emotional health indicators (Figure 11). Specifically, students visiting the SBHC were more likely to report high levels of distress and suicide attempts than students visiting outside providers. The trends for the other two indicators -- low self-esteem and suicide thoughts -- were also higher among the SBHC visitors, although not significantly different.

Figure 11: PERCENT OF POOR EMOTIONAL HEALTH INDICATORS Among All Students, According to Mental Health Service Use



* Indicates statistically significant difference (less than 5% likelihood that the difference was due to chance.)

Although the trends among students for substance use, sexual activity and school performance suggest higher risk behavior among the SBHC users, none of the differences reach significance.

Conclusions

This analysis consistently demonstrates that the SBHC is serving students with greater needs than outside providers. For all 12 comparisons studied, the SBHC users had higher percentages of risk indicators than users of outsider services. The only consistently significant differences, however, occurred in the area of emotional health.

These indicators of emotional health may not be clinical definitions of depression, but they certainly represent risk factors for depression. As Dryfoos points out, "Depression is one primary diagnosis

about which there is agreement: depression and related stress are documented antecedents of school dropout rates and substance abuse."[10] Substance use behavior, sexual activity and school performance are not significantly different between these two groups of students. Finally, the percentage of students who visit an outside provider for mental health services (14%) is about the same as the percentage of students who report such a visit to the SBHC (11%).

IIb. REPRODUCTIVE HEALTH SERVICE USE

We next compared the emotional health, substance use and school performance of sexually active students according to whether they had reported a reproductive health visit to the SBHC or to an outside provider (Table II), page 18. Among all sexually active students, SBHC visitors reported higher distress, more suicide thoughts and more suicide attempts than those visiting an outside provider (Figure 12), page 19.

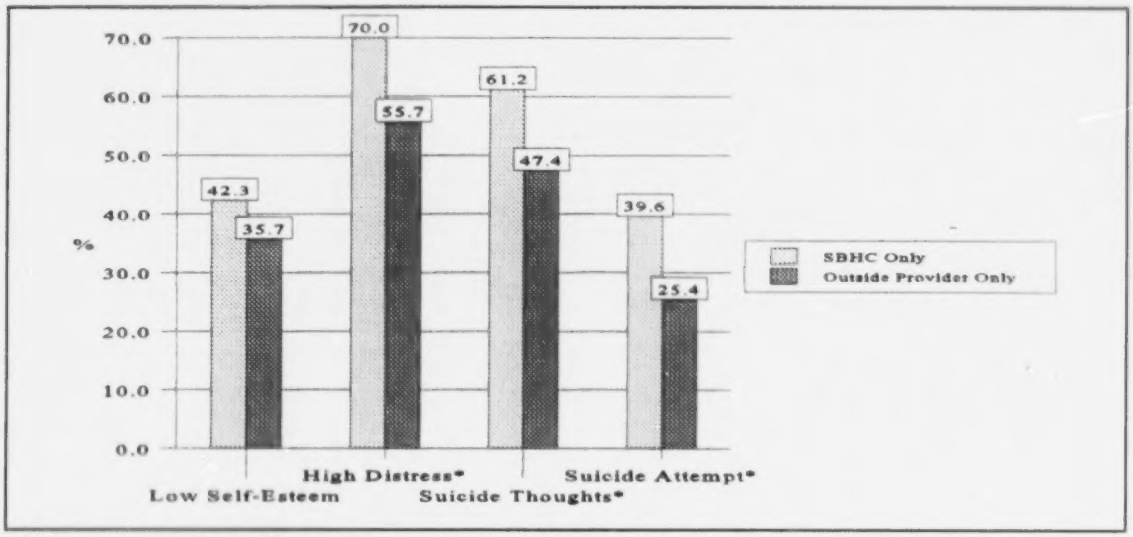
TABLE II: COMPARISON OF PROBLEM BEHAVIORS AND EMOTIONAL ISSUES AMONG SEXUALLY ACTIVE STUDENTS, ACCORDING TO REPRODUCTIVE SERVICE USE

	SBHC Only	Outside Provider Only	Both	Neither
Overall % reporting a visit	9.9	30.4	7.6	52.3
Emotional Health Indicators	SBHC Only	Outside Provider Only	Both	Neither
% Low Self-Esteem	42.3 †	35.7	40.0	32.0
% High Distress	70.0 *	55.7 *	57.3	49.4
% Thoughts of Suicide	61.2 *	47.4 *	48.6	43.5
% Attempted Suicide	39.5 *	25.4 *	30.3	21.5
Substance Use Risk Behaviors	SBHC Only	Outside Provider Only	Both	Neither
% Who smoke cigarettes	30.6	27.6	35.5	25.4
% Who binge drink	40.3	33.6	35.8	32.6
% Who use marijuana	52.5	44.2	44.5	38.2
Sexual Activity	SBHC Only	Outside Provider Only	Both	Neither
% Who've had sex in the past 4 weeks	55.8 *	65.5 *	61.8	45.4
Academic/Attendance Indicator	SBHC Only	Outside Provider Only	Both	Neither
% with B or better GPA	58.2	60.2	48.1	53.3
% Who missed school due to illness	48.7	49.0	56.8	40.1
% Who missed school because skipped or cut	48.2 *	33.4 *	35.0	29.9

† For example, among sexually active students who have used reproductive health services at the SBHC only, 42.3% report low self-esteem.

* Indicates a p value of < 0.05

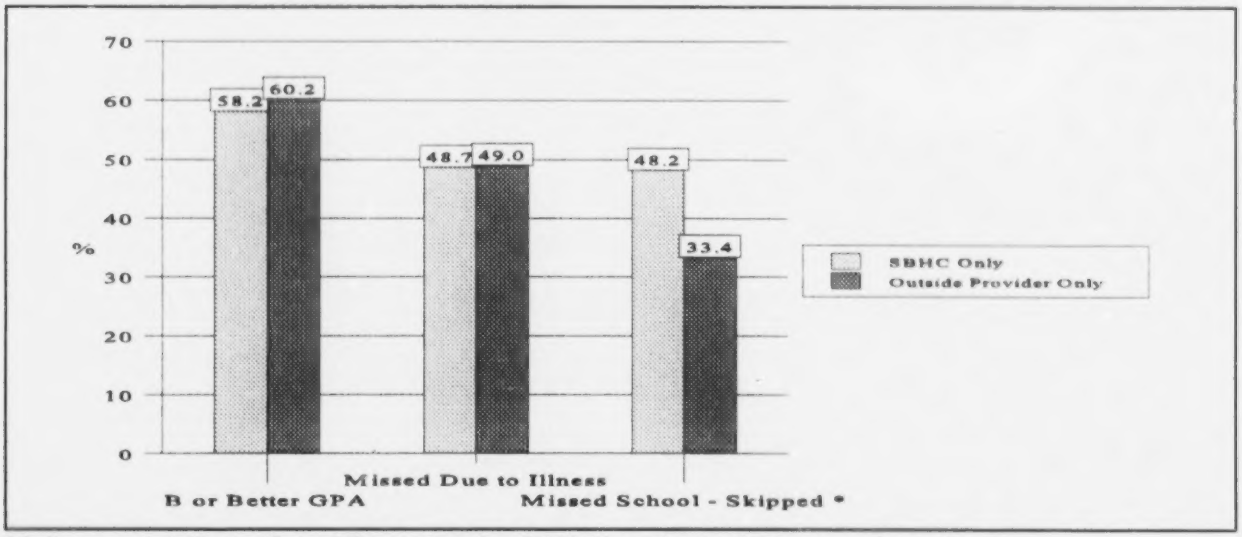
Figure 12: PERCENT OF POOR EMOTIONAL HEALTH INDICATORS
Among Sexually Active Students According to Reproductive Health Service Use



* Indicates statistically significant difference (less than 5% likelihood that the difference was due to chance.)

There were no significant differences for substance use between the two groups of students. In the area of school performance, SBHC visitors were significantly more likely to have reported skipping or cutting school than those visiting outside providers (Figure 13).

Figure 13: PERCENT OF ACADEMIC PERFORMANCE & ATTENDANCE INDICATORS
Among Sexually Active Students According to Reproductive Health Use



* Indicates statistically significant difference (less than 5% likelihood that the difference was due to chance.)

Conclusion

Once again, students with the greatest need are those that seek services at the SBHC. In this case, students seeking reproductive health services have significantly worse emotional health indicators than those seeking the same services from a provider outside of the school. While the difference for other indicators (substance use, school performance) was consistently worse among SBHC visitors, these other differences did not meet our definition of significance.

Providers of reproductive health services outside the school are a more frequent source of care than the SBHC. About three times as many sexually active students report a reproductive health contact with an outside provider (over 30%) as with the SBHC (about 10%). This difference may be accounted for by the fact that students realize that there were numerous local restrictions placed on the type of reproductive health services the SBHC could offer. These restrictions are explained in the following analysis (III).

III. IMPACT

This analysis reports the findings of our central study question: What is the impact of the SBHC on the health of the students? To answer this question, we examined three pairs of schools, each with a center which had been operating for five school months at the time of the Baseline Survey.* These pairs are defined as Study Sites A, B, and C. The study populations of these schools at baseline and follow-up are included in Table III., page 21.

*The two schools with centers that were well established at the time of the Baseline Survey were not included in this analysis nor was one small control school.

TABLE III: STUDY POPULATIONS

BASELINE (1990)		F/U (1992)
Study Site A:		
SBHC	739	755
Control	1131	1114
Study Site B:		
SBHC	354	380
Control	424	484
Study Site C:		
SBHC	1126	1194
Control	525	495
TOTALS	4299	4422

The impact of the clinic on behavioral outcomes was assessed in two ways. For the magnitude of the impact, we computed the proportions at each time point in the clinic and control schools and subtracted baseline from follow-up to get the change over time.

For example, if the percent of students who reported unprotected sex was 30% at baseline and 25% at follow-up, the change over time was reported as -5%. If the clinic had a positive impact, we would expect changes over time in negative risk behaviors to be less (either more negative or less positive) in the clinic schools than in the control schools. Differences in trends over time between each clinic and control school were tested for significance.

Computing the statistical significance of the impact of the clinics was more complicated. Please see the footnote on this page for a discussion of this methodology.**

We examined 52 variables in this study. The first nine variables describe the trends in demographics and school performance between schools. Because we would not expect the SBHC to impact these variables, they are excluded from the impact analysis. We also excluded the variable regarding initiation of sexual activity at age 14 or younger because this activity is prior to exposure to the SBHC. We included 42 variables in our analysis for impact in the following eight categories:

- health care utilization
- substance use
- emotional health
- reproductive health attitudes
- sexuality dialogue with parents
- sexual activity
- contraceptive behavior
- reproductive health outcomes

Appendix IV contains the data for the impact analysis in their entirety, with the percentage frequencies arranged according to all 52 study variables in each of the original categories. Baseline and follow-up frequencies are recorded for the clinic and control schools, respectively, as are the percentage change between

---

**Since the group of students at baseline and follow-up were different (this was a repeated cross-section rather than a cohort design), regression analysis was used to test for significance (rather than t-tests). Since all of the outcomes were binomial, logistic regressions were used instead of ordinary least squares.

The basic method used for the logistic regression was to pool all of the data (i.e. both clinic and control schools, both survey occasions) and include the behavior of interest (e.g. unprotected sex) as the dependent variable. The key independent variables were clinic status (clinic/control), time of survey (baseline/follow-up), and the interaction of clinic status and time. The coefficient on the interaction term would be small and statistically insignificant if the clinic and control schools exhibited roughly the same trends over time in the behavior of interest. If the clinic had a positive impact, the interaction term would be statistically significant and in the "expected" direction, e.g. negative in the case of a negative risk behavior.

Additional independent variables were added to the regression -- gender and a dummy for each grade -- to ensure that changes in risk behaviors were not simply due to changes in the age/gender composition of the survey sample.

For example, if the sample shifted from being mostly 11th and 12th graders to being mostly 9th and 10th graders, we would expect a reduction in overall measured risk behavior prevalence even if the prevalence for every grade remained unchanged.

baseline and follow-up. The second-to-last column displays the difference between the change at the two schools. The final column assigns a positive or negative value to this difference, assuming that the school-based center had some influence on this change. A neutral category is used for items where the SBHC could not be expected to influence the outcome, i.e. sexual activity at 14 years or younger.

In the context of the remarks describing impact, the term "significant" means that there is less than a 5% likelihood that this change occurred by chance ($p < 0.05$). The term "trend" is used to indicate changes that seem notable, but were not significant. For ease of presentation, comments regarding change at each study site will be confined to the intervention school as compared to the control school. Changes are described at the clinic school over time, as compared to the control school.

Study Site A

Before analyzing the impact of the clinic on the health behaviors of the students, it is helpful to look at the information gleaned from the provider survey about the clinic hours of operation per week, the budget, practice constraints and staffing. At this study site, these four factors remained the same from baseline to follow-up. The clinic operated 40 hours per week, with a constant budget of $150,000. In terms of staffing, they employed a full time nurse practitioner (NP), clinic coordinator and health assistant; a 32 hour/week office assistant; and a half-time mental health counselor. They confronted the following practice constraints: although birth control such as oral contraceptive pills could be prescribed, they could not be dispensed on the school grounds and appointments at referral clinics were difficult to get without a long wait.

An interview with a staff member at Study Site A revealed additional problems faced by the SBHC. First of all, no nurse practitioner was hired for the first five months that the clinic was open. An NP was finally hired but did not last the school year. In attempting even to open their doors, the SBHC faced negative community and parent response. Furthermore, during the first two years, negative media attention surrounded the clinic, including pickets outside of the school. An extensive telephone survey in 1989 sought to measure the actual parent, student and nonparent school district resident support for the proposed SBHC. This poll revealed that 57% of the parents favored the opening of the SBHC and supported the availability of reproductive health services at these centers, whereas 28% opposed the program. Thus, despite the opposition from a vocal minority of the community, the silent majority supported the SBHC. This controversy compelled the SBHC and its staff, however, to maintain a low profile during the first two to three years of its existence.

Consequently, it wasn't until years three, four and five that the staff increased outreach and enrollment -- by 1994, 95% of the students had parental consent on file.

Tables IV,V, and VI present the impact summary scores for the three clinics, based on the methodology developed by Cheadle et al.[11] The "all comparisons" category accounts for the number of all positive and negative differences among the 42 study variables for each study site. The significant comparisons grouping presents only those differences that achieved statistical significance. The totals for both comparisons are presented at the bottom of the tables.

The substance use indicators from Study Site A are used here as an example.

EXAMPLE

Substance Use - Study Site A								
	Clinic School			Control School				
VARIABLE (%)	Baseline	Follow-up	Change	Baseline	Follow-up	Change	Difference	pos/neg
Smoker	17.5	14.1	-3.4	10.8	12.0	1.2	-4.6	pos
Binge drinker	18.5	14.3	-4.2	13.3	14.5	1.2	-5.4	pos *
Marijuana use, past year	23.1	19.9	-3.2	15.8	19.5	3.7	-6.9	pos *
Crack use, past year	2.6	3.0	0.4	1.6	2.6	1.0	-0.6	pos
Cocaine use, past year	3.7	3.5	-0.2	2.9	3.0	0.1	-0.3	pos
Drug use at school	16.1	15.0	-1.1	11.0	14.0	3.0	-4.1	pos
Methamphetamine Use	10.1	6.4	-3.7	6.8	5.3	-1.5	-2.2	pos

* p value = <0.05

Based on this table in Appendix III, the summary score for "substance use" in Table IV is as follows: Study Site A impact summary scores, are 7 positive, 0 negative, and 7 total for *all comparisons*. The *significant comparisons* columns show the 2 positive, 0 negative and 2 total.

TABLE IV: STUDY SITE A - IMPACT SUMMARY SCORES

	All Comparisons			Significant Comparisons		
Impact Categories	Pos	Neg	Total	Pos	Neg	Total
Health Care Utilization	5	5	10	0	0	0
Substance Use	7	0	7	2	0	2
Emotional Health	1	4	5	0	0	0
Reproductive Health Attitudes	4	0	4	0	0	0
Sexuality Dialogue with Parents	1	3	4	0	0	0
Sexual Activity	2	0	2	0	0	0
Contraceptive Behavior	0	4	4	0	1	1
Reproductive Health Outcomes	1	5	6	0	0	0
TOTALS:	23	19	42	2	1	3

Substance use decreased for all seven variables studied, and two of them decreased significantly: binge drinking and marijuana use. Although all reproductive health attitudes showed positive trends, none improved significantly. Emotional health indicators all showed worsening trends over time, though none were significant.

Reproductive health attitudes showed improving trends, and sexuality dialogue with parents showed deteriorating trends, though none were significant. The frequency of sexual activity showed a decreasing trend, though not a significant one. The number of students reporting use of a valid birth control method decreased significantly, and the remaining three items in this category showed a negative trend.

When the various changes are summarized, there appear to be no significant differences at the clinic school compared to the control school. In fact, finding three significant differences out of 42 variables studied may be explained by chance alone. Furthermore, when all variables are examined, 23 are positive and 19 negative, a nearly even distribution of trends.

Study Site B

The provider survey at this study site revealed that their services had basically been reduced by half from baseline to follow-up. The budget was cut from $66,837 to $37,000, and the hours of operation were reduced from 32 to 16 per week. The nurse practitioner's and nurse's hours dropped from 16 to eight hours per week; the human services assistant's from 32 to 16 hours per week; and the child and family therapist from eight to four hours per week. They reported consistent practice constraints -- could not test for pregnancy; could not prescribe or dispense contraception; could not discuss abortion referral; and could not perform gynecological exams for contraceptive purposes.

TABLE V: STUDY SITE B - IMPACT SUMMARY SCORES

	All Comparisons			Significant Comparisons		
Impact Categories	Pos	Neg	Total	Pos	Neg	Total
Health Care Utilization	5	5	10	0	0	0
Substance Use	6	1	7	0	0	0
Emotional Health	2	3	5	0	0	0
Reproductive Health Attitudes	0	4	4	0	1	1
Sexuality Dialogue with Parents	4	0	4	0	0	0
Sexual Activity	0	2	2	0	0	0
Contraceptive Behavior	4	0	4	2	0	2
Reproductive Health Outcomes	3	3	6	0	0	0
TOTALS	24	18	42	2	1	3

While there are many categories that suggest change, only three of the 42 variables reached significance; again, few enough that these may be explained by chance alone.

There was a significant decrease in the percent of students who disapprove of sex before marriage (in other words, an increase in the number who approve of sex before marriage). While this was the only significant change in this category, the trend for all items was in an undesired direction.

Students at this school showed an insignificant trend towards increasing sexual activity. The contraceptive behavior of students at this study site appears to have improved. There was a significant increase in the number of students reporting use of a valid birth control method during their first intercourse. Additionally, there was a significant decrease in the percent of students who waited six months or more from their first intercourse before using a valid contraceptive method. (In other words, an increase in the percent of students who initiated contraception within six months from first intercourse.) An increased percentage of students also reported using a valid method of birth control at most recent intercourse.

While other categories showed trends suggestive of differences, there were no other significant changes between the two schools. Overall, the comparisons were evenly divided between positive and negative findings both for all comparisons and for significant comparisons, so that a global assessment reveals no change or health impact at this clinic.

Study Site C

The clinic provider survey revealed some budgetary and personnel changes during the study period. The budget decreased from $52,010 to $25,000 due to state cuts, but carry-over funds from the previous year increased their total operating budget in 1991-92 to $31,821. Their pediatrician worked nine hours a week at both baseline and follow-up; the department assistant remained at 40 hours per week, as did the mental health specialist at four hours per week. In 1990-91 a Community Health Nurse (CHN) 3 (bachelors prepared nurse) worked 40 hours per week; in 1991-92 a CHN 1 (associate degree nurse) worked 28 hours per week. As in A and B, the clinic faced the common constraint of not being able to prescribe or dispense contraception.

Several characteristics of the SBHC at Study Site C might have contributed to the changes demonstrated there. First of all, the nurse had a master's degree in mental health, which presumably would enable her to provide additional mental health services to the students at this study site. There was an eleven percent (11%) increase in the number of students reporting a grade point average of B or better, which was a significantly different improvement from the control school. These improved grades may represent more global changes among these students including many of the risk behaviors studied.

The SBHC at Study Site C was a principal community resource for students to talk about reproductive health issues. The school board restricted family planning services to referral only (except for STDs), and forbade

contraceptive services. These restrictions limited the ability of the SBHC to provide comprehensive reproductive health services on site. However, this school is located within walking distance of the health department, so SBHC personnel could easily refer students directly there, where there were no restrictions on reproductive health services. The close proximity of the SBHC and the health department encouraged the development of a successful collaboration that facilitated more comprehensive care for the students.

The interview indicated that the SBHC staff placed great emphasis on encouraging abstinence, so that issues regarding contraceptive compliance became secondary. Specifically, they asked students if engaging in sexual intercourse was their choice and if it was a well thought out decision. They also encouraged students to discuss this issue with their parents.

TABLE VI: STUDY SITE C - IMPACT SUMMARY SCORES

	All Comparisons			Significant Comparisons		
Impact Categories	Pos	Neg	Total	Pos	Neg	Total
Health Care Utilization	6	4	10	1	0	1
Substance Use	7	0	7	4	0	4
Emotional Health	5	0	5	0	0	0
Reproductive Health Attitudes	4	0	4	2	0	2
Sexuality Dialogue with Parents	2	1	3	0	0	0
Sexual Activity	2	0	2	2	0	2
Contraceptive Behavior	0	4	4	0	0	0
Reproductive Health Outcomes	3	3	6	0	0	0
TOTALS	29	12	41	9	0	9

There were many significant improvements at Study Site C. In the health care utilization category, there was a significant decrease in the number of students reporting being treated in an emergency room in the past year. The other responses in the health utilization category showed a mix of positive and negative trends, though none reached significance. Because this one significant item does not represent the remainder of the category, it should be interpreted with caution as representing a significant desirable trend in health care utilization.

All seven of the substance use variables improved at the study site. Four of these decreases were significant: cigarette smoking, crack use, cocaine use and methamphetamine use. Non-significant decreases occurred with drug use at school, binge drinking, and marijuana use.

Reproductive health attitudes and behavior also improved at the study site. There were significant increases in the percentage of students who disapprove of sex before marriage, and who disapprove of sex while still in high school. The remaining two attitudes also demonstrated improving trends, although the changes were insignificant.

The sexual activity measures improved as well. The percent of students who had ever had sex decreased significantly, as did the number who are currently sexually active. Both of these reductions occurred among a population who reported an increase in first intercourse at age 14 or younger, a risk behavior that precedes exposure to the high school years and to the SBHC intervention.

The emphasis on abstinence and parental communication at this study site may have contributed to the significant improvement in reproductive health attitudes and the reduction in sexual activity demonstrated here. Among sexually active students, there were no significant findings in contraceptive behavior, although all trends were in a negative direction.

In summary, Study Site C shows evidence of positive change in several areas: substance use, reproductive health attitudes, and sexual activity.

Summary Findings

When outcomes from the three study sites are viewed in the aggregate, we conclude that there were no global changes, positive or negative, at the Study Sites A and B. At these two schools, however, there do appear to be clusters of related behavior changes. For example, substance use appeared to decrease at Study Site A, and contraceptive use appeared to improve at Study Site B.

Study Site C, however, showed twice as many positive as negative comparisons. Even more compelling, all nine significant comparisons at this site were positive. Thus, it was only at Study Site C that this evaluation was able to document global change -- a decrease in substance use, an improvement in reproductive health

attitudes and a decrease in sexual activity. What is different at Study Site C? School-community acceptance, a well-staffed SBHC collaboration and physical proximity to the local health department clinic are factors that were present at Study Site C more so than the other sites.

It is also worth noting some other associations at these schools that may warrant further analysis. School performance seemed to deteriorate at Study Sites A and B, and to improve at Study Site C. It might be that the many complicated factors that go into being a better student are a more important influence on our target behaviors than the clinic itself.

One finding at all three schools warrants discussion about the causal link of the clinic visit itself on health outcomes. In attempting to demonstrate change caused by this intervention, we would first hope to see several examples of change in health service use, as an intermediate step to changes in the health behaviors we examine. At all three study sites, we failed to find a global impact on health service use behaviors outside of the school, such as a reduction in emergency room visits. Despite this, we have presented high rates of service use and high levels of satisfaction with the SBHC service itself earlier in this report. Furthermore, there was a positive, although insignificant, change at all three sites in the percentage reporting that they saw a health care provider in the past year. Thus, although students use and are satisfied with the service, we have no evidence that use of the SBHC impacts health service use outside of the clinic.

Discussion

While it is tempting to focus our discussion on the clinic that was associated with improved measures, it is at least as important to consider why we were unable to demonstrate change in two of the three study sites. Overall, it is extremely difficult to demonstrate impact given the constraints of this type of study. The lack of positive impact demonstrated at two of the study sites may reflect weaknesses of the study design and methodological restrictions rather than inherent weaknesses of the SBHC program. Such aggregate data may not be sensitive enough to capture the positive effect made on individual students. In the apt words of Enkin and Chalmers, "Many things that really count cannot be counted." [12]

PROGRAM EVALUATION: A REVIEW OF OTHER COMMUNITY-BASED INTERVENTIONS

Previous studies have struggled to find any significant impact on the health of the students in schools with SBHCs. Most notably, a comprehensive survey of six SBHCs in 1989 by Kirby reported only mixed results.[11]

As Kirby pointed out, research has shown that it is difficult to change adolescent behavior, and with so many other influences on youth, "it is unreasonable to expect the presence of a school-based clinic to have a significant impact upon these [health and risk-taking] behaviors, though these clinics are often touted as the panacea for many ills."[14]

Another community-based intervention, Community Intervention Trial for Smoking Cessation (COMMIT), which targeted heavy smokers, has been evaluated more recently.[15] The results indicated no difference in the cessation rates among heavy smokers in the intervention communities versus the comparison communities, although the light-to-moderate smokers in the intervention communities did show a higher quit rate. These disappointing findings point to several common difficulties with demonstrating the health impact of community interventions. First of all, perhaps the investigators' initial expectations were too high, seeking to demonstrate a change in this notoriously addictive behavior pattern through broad, community-based interventions. Attempting to extinguish existing behaviors, otherwise known as secondary prevention, is significantly harder to accomplish than primary prevention; that is, programs aimed at the initial avoidance or delay of initiation of the undesired behavior.[16] The study concluded that community approaches need to be more carefully studied to demonstrate which kinds of interventions have which kinds of effects on which people.[17] Different segments of the population require different approaches, and heavy smokers may require more intensive treatment plans. Similarly, different segments of a high school population may require more than access to a SBHC, and different levels of service intensity, outreach, or other collaborative services.

A 1992 article by Cheadle et. al., *An Empirical Exploration of a Conceptual Model for Community-Based Health-Promotion*, examines the theoretical models of behavior change, seeking to empirically validate these models. The authors point out that many intermediary steps exist between developing a public health community program and demonstrating personal behavior change. Accepted community norms and the social environment must first reflect the change, followed by role models within the community, then by individuals' behaviors. Furthermore, these changes may take longer than a few years to evolve. Thus, as found in Study Site A, only testing two points in time two years apart may not allow enough time to detect subtle changes. Cheadle's article suggests that communities "have an underlying consistency with respect to community norms, the environment, health behaviors and perhaps other community characteristics,"[18] toward which they tend to revert. These factors would contribute to the difficulty in demonstrating impact in the SBHC community.

SCHOOL-BASED HEALTH CENTERS: PREVENTION PROGRAMS OR TREATMENT PROGRAMS?

The school-based health center movement has been fueled, in large part, because this model was seen as a potentially successful approach to preventing many of the most critical adolescent health problems such as teen pregnancy and drug use. Accordingly, evaluators, such as ourselves, set about attempting to demonstrate the success of SBHCs at preventing these problems. Since this study began, Dryfoos published an eleven point list of common characteristics found in a survey of successful adolescent risk behavior prevention programs. A review of these eleven points and a short analysis of whether Oregon's SBHC program meets each point helps to re-focus our discussion on what are reasonable expectations of these clinics in the area of prevention.[19]

1. Individual attention to the personal needs. That is, individual youths need a responsible adult who pays attention to his or her specific needs. Clearly this is a strength of the SBHC model. The core of this intervention is the confidential, therapeutic encounter that responds to the individual needs of the student.

2. Broad, community-wide intervention.

A primary lesson of virtually all successful prevention programs, according to Dryfoos, is the importance of reinforcing the intervention through a number of different collaborative programs targeting the same problem. Although the SBHC might function as an integral component of a community-wide intervention, it is only one component.

3. Early identification and intervention.

We have presented evidence in this report that, for a significant percentage of the high school population, all of the health-risk behaviors examined have their origins prior to these students' matriculation in the ninth grade. Accordingly, primary prevention ***by definition*** cannot be a goal for this set of students. In order to prevent these risk behaviors, any interventions must be targeted at a younger population of students.

4. Locus in the schools.

A healthy school climate and effective school organization are crucial to the success of prevention-oriented programs based on school campuses. A prevailing theme among successful programs is the identification of the school's principal as a key element to that success. While SBHCs contribute to a healthy school environment, they are only one component of a well-functioning, healthy school community. School faculty,

administration, parents, and the students themselves contribute to the school climate in ways that are ***at least*** as important as the presence of a SBHC.

5. Administration of programs by agencies outside of the schools.

This is a strength of the SBHC model. Oregon's SBHCs use space in the school building, but are administered and operated by local county health departments. This multi-agency collaborative model for the SBHC has been successfully replicated across the nation.

6. Location of programs outside of schools.

In general, SBHCs are located directly on the school campus. Although this location optimizes accessibility of the service, it also creates some limitations. For example, youth who have dropped out of school generally cannot be served at the SBHC, controversial services such as contraception frequently cannot be provided, and it is difficult for the program to function when school is not in session and the building is closed. It is worth recalling that the one Study Site presented in this report that was associated with positive behavior change is located within walking distance of the local Health Department clinic, and a strong collaboration has evolved between these two points of service.

7. Arrangement for training.

This is a strength of the SBHC model. Early on, the ongoing training needs of the SBHC staff were identified. Technical assistance, conferences and workshops were made available or developed to enhance the staff's skills and knowledge. SBHC staff are unique providers and benefit from opportunities to meet with other practitioners to share practices, successes and challenges, programs and expertise. Bi-annual or annual opportunities have been provided for such experiences. In addition, SBHCs in Oregon are developing opportunities to provide onsite training experiences for mid-level practitioners. One SBHC is in part sponsored by a nursing school and has structured mini-residencies for a variety of practitioners.

8. Social Skills Training.

Another component of successful prevention programs is a focus on teaching students coping skills to resist negative influences and to make healthy decisions. For example, programs employ role playing, rehearsal, and peer instruction. The most successful programs provide this training *in a variety of settings* and *over time*

While attention to decision-making skills is frequently part of the clinical encounter, these messages must be delivered by a variety of individuals in the school community — teachers, administrators, coaches, parents and peer group. The SBHC is only one delivery point that can contribute to successful social skills training.

9. Engagement of peers in interventions.

Although many students are referred to the SBHC by their classmates, peer training and peer intervention are not an explicit focus of this model. The individual clinical encounter, which is confidential, avoids peer involvement by design. In the initial years of the SBHCs, classroom health education was limited due to the heavy appointment schedule and limited practitioner time resulting from funding cutbacks. With restoration of funding to previous (1989) levels, and an increased emphasis and ability, the staff of SBHCs are providing more classroom health education and contribute greatly to the overall positive health attitudes and values of the school environment.

10. Involvement of parents.

This is a reasonable goal of the SBHC program, within limits. Parents clearly need to be involved in preventive efforts regarding their children. Study Site C, for example, emphasized the importance to their clients of discussing sexuality issues with their parents. At each school community, SBHCs have an advisory committee which includes parents as well as other community leaders. Parents also must provide consent for their child to become a client of the SBHC at many sites. It should be emphasized, however, that the actual clinical encounter is frequently confidential, which is one of the core strengths of this care delivery model. Parents, in effect, provide consent for their children to take responsibility for their own health issues, an important part of the emancipation process that embodies adolescence. By so doing, parents place trust in both their adolescent and in the SBHC providers, a community attitude that takes time to develop. Beyond these relationships, the larger school community must commit to finding additional ways to involve parents in the preventive health of their children.

11. Link to the world of work.

While success incentives achieved through work are critical to building an adolescent's self- esteem and future expectations, this goal is beyond the scope of the SBHC. Again, the SBHC could serve as a natural collaborative partner in such an effort.

In summary, of these eleven common components, four are clearly identified as integral to the SBHC program: **individual attention to personal needs; focus in the schools; administration of programs by agencies outside the schools;** and **arrangement for special training**. In purely numeric terms, the SBHC meets only four of these eleven criteria for successful prevention programs. Is it then reasonable to expect these programs ***by themselves*** to prevent teen pregnancy, sexual activity, substance use and the other health risk behaviors for which they have been called to task?

Unlike health prevention programs, which are curriculum oriented, the medical model employed in these clinics is fundamentally treatment- or problem-oriented. The agenda is created by the client, who seeks help with a problem. Although the encounter may turn to preventive issues, this problem-oriented approach is fundamentally different from prevention programs, where the intervention's agenda, for example postponing sexual activity, is presented to the client. This problem-oriented model, which works well for a clinic, makes for a poorly focused prevention strategy from the perspective of a program evaluation requiring discrete, quantifiable outcomes.

Limitations Placed on This Treatment Model

It must be mentioned that there are limitations placed on this treatment-oriented model in Oregon, both at the State and local levels. The State budget notes for the school-based health centers during the Baseline and Follow-Up Surveys clearly prohibit the use of state general funds to procure or dispense contraceptives, effectively limiting the scope of reproductive health services.** Local school boards and/or SBHC advisory boards at each of the clinic study sites reinforced or enlarged this limitation, in some cases mandating that clinic staff could not discuss issues related to birth control.

Schools hold a special place in our community psyche, and many find the availability of contraceptive services on a high school campus unacceptable. This decision must be respected. However, those crafting the State and local policies that guide the operation of these clinics need to acknowledge that they are creating barriers for students who are seeking a generally accepted standard of reproductive health care. It is no surprise that this report found three times as many students seeking reproductive health services from outside practitioners as from the school-based health center (Analysis II b). These reproductive health limitations further diminish

** Current budget notes reflect the ability to use funds for a range of reproductive health services and information including contraception dispensing, abortion counseling and referral.

the SBHC provider's ability to prevent unwanted teen pregnancy, which was the central guiding rationale for this state-wide program in the first place.

Funding for Oregon's SBHCs is low, by national standards. Robert Wood Johnson Foundation studies reveal that total operating expenses for SBHCs in 1991 ranged from $70,000 to $360,000 per year with an average of $297,977.[20] A 1995 article in Hospitals and Health Networks estimated that "a low wage state might be able to operate a school-based clinic for about $130,000 per year, but that could easily double in high wage states."[21] Thus, based on these national standards, the Oregon SBHCs are grossly underfunded. The Oregon legislature cut the 1991-93 funding for SBHCs to approximately $29,000 per year. Although there was limited and variable local funding, it was insufficient to compensate for these funding cuts. In 1991, this amount was restored to the 1989 level of approximately $50,000 per clinic per year.

Methodological Issues And Limitations of This Study

The gold standard of program evaluation is the prospective, randomized trial. This type of study design involves "study units" that are randomly assigned to either intervention or control groups. These units of study, or *cohorts*, are identified, and the results of the intervention and comparison cohorts are compared over time. This study design was impossible to achieve for three principle reasons.

First, all regression analyses were performed at the individual rather than the school level. Since assignment to treatment group was made at the school level, school is really the appropriate unit of analysis. However, a school-level analysis was not feasible given the limited number of schools in the sample. This means that these results can not be generalized to teen clinics in other schools.

Second, the selection of our study schools was not random. When operating funds for the State's school-based health centers were first allocated a decade ago by the Oregon State Legislature, the budget notes stipulated that the clinics be placed in areas of highest need. Our baseline data (see Appendix IV) confirm that this occurred. These clinics were placed in school communities experiencing high rates of tobacco, alcohol, and other drug use, and high rates of sexual activity and teen pregnancy. The other factor that made it impossible to randomize our study sites is that school communities must initiate a grassroots effort to move themselves forward into the consensus building, planning, fundraising and implementation phases necessary to open a school- based health center. Typically, a few key individuals bear most of the weight of this long, elaborate

and tedious process. Because of this process, the random selection of SBHC communities for evaluation purposes would ignore and undermine the voluntary nature of community mobilization. Accordingly, evaluators are presented with a "natural experiment" on which to study impact, which limits our ability to make generalizations from our findings beyond the clinics we studied. In spite of this limitation, we should re-emphasize that every effort was made to find the most regionally and demographically appropriate matches for these schools.

Third, our adolescent health survey instrument was anonymous, so that there was no way to identify the same student at both the Baseline and Follow-Up Surveys. Instead, the Baseline and Follow-Up Survey populations represent a "snapshot" of the student body present at the time of the two surveys. Between two years of matriculation, graduation, dropping out and student transfers, less than half of the student body could have completed both the Baseline and Follow-Up Surveys. Since we don't know who those students are, we are unable to follow a cohort of students over time. This lack of a single cohort weakens our ability to demonstrate the potential health impact of the SBHCs.

Finally, it would seem that a study of trends in health behaviors among the sub-population of students who actually use the SBHC service compared to students who did not use this service would be an obvious approach. The problem here lies in identifying an appropriate group of students for comparison. Students who decide to use the SBHC service are probably different from students who do not use the service in important but immeasurable ways, so deciding who to compare clinic users with becomes impossible.

CLOSING COMMENTS

It should be obvious that the limited treatment model that the SBHC represents cannot be held accountable for preventing adolescent health-risk behaviors and their sequelae. It should also be obvious that, even if this model met all eleven of Dryfoos' prevention criteria, this limited evaluation might not be able to find the impact. Many of the positive changes brought about by these clinics are subtle and individual to each human life touched by the service. Finding the impacts of the SBHC program through this evaluation often leaves us feeling as if we are trying to weigh an envelope for postage on a bathroom scale-- although the envelope weighs some amount, our instrument is not sensitive enough to detect the difference. Given these limitations, it is remarkable that we demonstrated change at one of the three Study Sites.

When this study was initiated, the SBHC movement itself was still in its adolescence. The movement has matured dramatically over the last five years, due to efforts of visionary states such as Oregon, foundations such as the Robert Wood Johnson Foundation, and most importantly, the grassroots energies of the communities that organize themselves around this model of health care. The school-based health center movement has grown from a fringe idea to an accepted concept, and the initial concerns of community groups, largely around sexuality, have quieted, as service providers have earned the trust of their schools and communities.

It is now time for the evaluations of these programs to mature along with the movement. Funding sources are limited, and what does *not* seem called for is one more definitive study to address the issue of the health impact of this service. Rather, the evaluations should respond to the current needs of the movement. Thus, as tempting as it has been to pursue evaluations with "hard" outcomes, more appropriate measures of this service might include the following:

- Does the clinical practice meet an appropriate standard of care?
- Are the clients satisfied with the service?
- Is the program cost efficient and serving a large number of youth?

What the movement also needs now from evaluators is attention to issues such as how to incorporate this health delivery model into existing funding streams. We must explore the most appropriate reimbursement strategies as the health care industry continues to evolve from a fee for service to a managed care model.

There also needs to be a prominent role for common sense in the discussion surrounding this service. If a new community clinic is placed in an underserved, inner-city community, the rationale for this choice, and the potential impact of the service, are readily accepted. Placing a clinic in a high school with a needy population of students is fundamentally no different than providing the same access to care for high risk populations.

Access to health services in a timely fashion among adolescents known for their "immediate gratification" approach to decision-making makes sense. Adolescents in general are an underserved population with real and unmet health needs which are frequently the result of unhealthy behaviors. Furthermore, we have shown in this report that the student who uses the SBHC for mental health or reproductive health services has worse

emotional health than the student seeking these services elsewhere in the community. In other words, within these high risk schools, the neediest students seek services at the SBHC.

This on-site treatment model is designed to intervene earlier in the course of a problem and to avoid lost time from school on the part of the student and lost time from work on the part of the parent. The potential strength of this model to successfully monitor patient compliance or to insure follow-up should also be obvious. For example, a recent study of compliance with tuberculosis medications in a school-based health center demonstrated that directly observed therapy is roughly twice as effective as traditional daily therapy.[22]

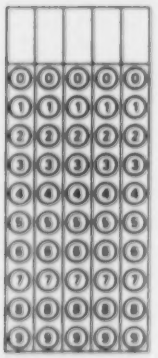
School-based health centers represent grass-roots efforts of individuals acknowledging the health care needs of adolescents, one of our highest-risk populations. The power of this health care model lies in its removal of barriers: financial, geographic and emotional. The next principle challenge involves incorporating this health service into the reimbursement stream, and in developing strategies for coordinating care with traditional providers. If the energy and commitment behind the school-based health center movement to date is any indication, these challenges will be realized.

APPENDIX I

ADOLESCENT HEALTH

SURVEY INSTRUMENT

Adolescent Health Survey



You are about to take part in an important statewide study being conducted by the Oregon Health Division. Thousands of students are filling out these questionnaires to help us learn about the opinions, problems, and general experiences of adolescents. The results of this study will be used to help state planners learn about your health needs and the best way to provide the right health services for you.

This is not a test. There are no right or wrong answers. If this study is to be helpful, it is very important that you answer each question as thoughtfully and honestly as possible. Your name will not be on this survey, so your answers will be completely anonymous. No one will know how you answered any of the questions.

Your participation in this study is voluntary. If there is any question which you do not want to answer, just leave it blank.

Please read the instructions below before beginning. Thank you very much for being an important part of this project.

INSTRUCTIONS

- All of the questions should be answered by marking one of the answer spaces. If you don't always find an answer that is exactly right for you, choose the one that seems closest.
- Use only a #2 pencil.
- Make heavy dark marks inside the circles.
- Erase cleanly any answer you want to change.
- Make no other markings or comments anywhere on the booklet.

EXAMPLES: Correct Mark ○●○○ Incorrect Marks ⊙○⊗◕

1. **How old were you on your last birthday?**

- ○ 12 years old or younger
- ○ 13 years old
- ○ 14 years old
- ○ 15 years old
- ○ 16 years old
- ○ 17 years old
- ○ 18 years old
- ○ 19 years old or older

2. **What is your sex?**

- ○ Male
- ○ Female

3. **What is your race?**

- ○ White
- ○ Black
- ○ Hispanic
- ○ Chinese, Japanese, or Pacific Islander
- ○ Southeast Asian
- ○ Aleutian, Eskimo, or American Indian
- ○ Other

4. **Were you born in the United States?**

- ○ Yes
- ○ No

5. **What is your grade level in school?**

- ○ 7th grade
- ○ 8th grade
- ○ 9th grade
- ○ 10th grade
- ○ 11th grade
- ○ 12th grade

6. **Which of the following people live in the same household with you?** (Mark all that apply. If you live in more than one household, describe the one in which you spend the most time.)

- ○ I live alone
- ○ Father (or male guardian)
- ○ Mother (or female guardian)
- ○ Brother(s) and/or sister(s)
- ○ Grandparents
- ○ My husband/wife
- ○ My children
- ○ Other relatives
- ○ Non-relatives

7. **What is the highest level of schooling your mother completed?**

- ○ Completed grade school or less
- ○ Some high school
- ○ Completed high school
- ○ Some college
- ○ Completed college
- ○ Graduate or professional school after college
- ○ Don't know, or does not apply

8. **What is the highest level of schooling your father completed?**

- ○ Completed grade school or less
- ○ Some high school
- ○ Completed high school
- ○ Some college
- ○ Completed college
- ○ Graduate or professional school after college
- ○ Don't know, or does not apply

9. **Many families get money from different places. Where does your family get money?** (Mark all that apply.)

- ○ Job or work
- ○ Unemployment
- ○ AFDC or welfare
- ○ Social security
- ○ Other
- ○ Don't know

10. **Does anyone in your household get food stamps?**

- ○ Yes
- ○ No

11. **How is your health care now paid for?**

- ○ Pre-paid health plan (e.g., Kaiser)
- ○ Private insurance (e.g., Blue Cross, Aetna)
- ○ Medicaid
- ○ My family pays because we do not have insurance or a health plan
- ○ Don't know

12. **How long have you lived in this community?**

- ○ 1 year or less
- ○ 2 years
- ○ 3 years
- ○ 4 years
- ○ 5 years or more

13. **When did you begin going to this school?**

- ○ 7th grade or earlier
- ○ 8th grade
- ○ 9th grade
- ○ 10th grade
- ○ 11th grade
- ○ 12th grade

14. **Have you ever repeated a grade in school?**

- ○ Yes
- ○ No

15. **During the last four weeks, how many whole days of school have you missed...** (Mark one circle for each line.)

	None	1-2 days	3-5 days	6-10 days	11 or more days
a. Because of illness	○	○	○	○	○
b. Because you skipped or "cut"	○	○	○	○	○
c. For other reasons	○	○	○	○	○

16. **Which of the following best describes your average grades in school right now?**

- ○ A
- ○ A-
- ○ B+
- ○ B
- ○ B-
- ○ C+
- ○ C
- ○ Less than C

17. **How much school do you think you will complete?** (Mark one.)

- ○ Quit during high school
- ○ Graduate from high school
- ○ Trade or professional school
- ○ Junior college
- ○ Four-year college
- ○ Graduate or professional school after college

The next questions concern your health.

18. **Would you say, in general, your health is:**

- ○ Excellent
- ○ Very good
- ○ Good
- ○ Fair
- ○ Poor

19. **When did you last go to a dentist?**

- ○ During the last 12 months
- ○ 1-2 years ago
- ○ 3-4 years ago
- ○ More than four years ago
- ○ Never

20. **When did you last go to a health care provider (e.g., doctor, nurse practitioner)?**

- ○ During the last 12 months
- ○ 1-2 years ago
- ○ 3-4 years ago
- ○ More than four years ago
- ○ Never

21. **Where did you go the last time you were seen by a health care provider?**

- ○ Private doctor's office
- ○ Community health center
- ○ Emergency room
- ○ School clinic
- ○ Other
  (Where? _____)

22. **Did you have to miss school to see this provider?**

- ○ Yes
- ○ No

23. **During the last twelve months, how many times, if any, were you treated at a hospital emergency room?**

- ○ None -- **GO TO QUESTION #25**
- ○ Once
- ○ Twice
- ○ 3 times
- ○ 4 times
- ○ 5 or more times

24. **What was the reason for going to an emergency room?** (Mark all that apply.)

- ○ Injury
- ○ Illness
- ○ Sexual assault
- ○ Drug or alcohol problem
- ○ Other
  (Reason: _____)

25. **During the past year, did you always get health care when you thought you needed it?**

- ○ Never needed it
- ○ Yes
- ○ No

If NO, why didn't you get the care you needed?

- ○ My parents didn't think I needed care
- ○ My parents couldn't take off work
- ○ It costs too much money
- ○ I didn't know where to go
- ○ I didn't want to miss school
- ○ I didn't have a way to get there
- ○ Other
  (Why? _____)

26. **Where would you go now if you felt sick or needed medical care?**

- ○ Private doctor
- ○ Community health center
- ○ Emergency room
- ○ School clinic
- ○ Other
  (Where? _____)

27. **How much do you agree or disagree with the following statements?** (Mark one circle for each line.)

	Strongly agree	Agree	Disagree	Strongly disagree
a. I feel that I am a person of worth, at least on an equal plane with others	○	○	○	○
b. All in all, I am inclined to feel that I am a failure	○	○	○	○

THIS QUESTION CONTINUES IN THE NEXT COLUMN

27. **(Continued) How much do you agree or disagree with the following statements?** (Mark one circle for each line.)

	Strongly agree	Agree	Disagree	Strongly disagree
c. I am able to do things as well as most other people	○	○	○	○
d. I feel I do not have much to be proud of	○	○	○	○
e. I feel that I have a number of good qualities	○	○	○	○
f. I wish I could have more respect for myself	○	○	○	○
g. I take a positive attitude towards myself	○	○	○	○
h. I certainly feel useless at times	○	○	○	○
i. On the whole, I am satisfied with myself	○	○	○	○
j. At times I think I am no good at all	○	○	○	○

The next section of this questionnaire deals with the use of tobacco, alcohol, and other drugs. There is a lot of talk these days about these subjects, but very little accurate information. Therefore, we still have a lot to learn about the actual experiences and attitudes of people your age.

We hope you can answer all of the questions, but if you find one which you cannot answer honestly, we would prefer that you leave it blank. Remember, no one will know how you answer the questions.

28. **Have you ever smoked cigarettes?**

- ○ Never --**GO TO QUESTION # 30**
- ○ Once or twice
- ○ Occasionally, but not regularly
- ○ Regularly in the past
- ○ Regularly now

29. **How frequently have you smoked cigarettes during the past 30 days?**

- ○ Not at all
- ○ Less than one cigarette per day
- ○ One to five cigarettes per day
- ○ About one-half pack per day
- ○ About one pack per day
- ○ About one and one-half packs per day
- ○ Two packs or more per day

30. **How frequently have you used smokeless tobacco (snuff, plug, dipping tobacco, chewing tobacco) during the past 30 days?**

- ○ Not at all
- ○ Once or twice
- ○ Once or twice per week
- ○ Three to five times per week
- ○ About once a day
- ○ More than once a day

IF YOU HAVE NEVER SMOKED CIGARETTES OR USED SMOKELESS TOBACCO GO TO QUESTION #34

31. **During the past 12 months, where have you most often gotten your cigarettes or smokeless tobacco?** (Mark one circle under cigarettes and one circle under smokeless tobacco.)

	Cigarettes	Smokeless tobacco
Friends	○	○
Parents gave them to me	○	○
Took them from parents	○	○
Grocery stores	○	○
Convenience stores (like 7-11, Circle K)	○	○
Gas stations	○	○
Restaurants	○	○
Vending machines	○	○
Other (Where?_____)	○	○

32. **During the past 30 days, how many times have you bought cigarettes or smokeless tobacco from any type of store or gas station?** (Mark one circle for each line.)

	None	Once	2-4 times	5 or more times
Cigarettes	○	○	○	○
Smokeless tobacco	○	○	○	○

33. **During the past 30 days, has any type of store or gas station refused to sell you cigarettes or smokeless tobacco?** (Mark one circle for each line.)

	Yes	No	I did not try to buy
Cigarettes	○	○	○
Smokeless tobacco	○	○	○

34. **Have you ever had any beer, wine, or liquor to drink?**

- ○ Yes
- ○ No--**GO TO QUESTION #38**

35. **On how many occasions have you had alcoholic beverages to drink?** (Mark one circle for each line.)

	0	1-2	3-5	6-9	10-19	20-39	40+
a. In your lifetime	○	○	○	○	○	○	○
b. During the last 12 months	○	○	○	○	○	○	○
c. During the last 30 days	○	○	○	○	○	○	○

36. **On the occasions that you drink alcoholic beverages, how often do you drink enough to feel pretty high?**

- ○ On none of the occasions
- ○ On few of the occasions
- ○ On about half of the occasions
- ○ On most of the occasions
- ○ On nearly all of the occasions

37. **Think back over the LAST TWO WEEKS. How many times have you had five or more drinks in a row? (A "drink" is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)**

- ○ None
- ○ Once
- ○ Twice
- ○ 3-5 times
- ○ 6-9 times
- ○ 10 or more times

38. On how many occasions (if any) have you used marijuana (grass, pot) or hashish (hash, hash oil)? (Mark one circle for each line.)

	0	1-2	3-5	6-9	10-19	20-39	40+
a. In your lifetime	○	○	○	○	○	○	○
b. During the last 12 months	○	○	○	○	○	○	○
c. During the last 30 days	○	○	○	○	○	○	○

39. On how many occasions (if any) have you taken "crack" (cocaine in chunk or rock form)? (Mark one circle for each line.)

	0	1-2	3-5	6-9	10-19	20-39	40+
a. In your lifetime	○	○	○	○	○	○	○
b. During the last 12 months	○	○	○	○	○	○	○
c. During the last 30 days	○	○	○	○	○	○	○

40. On how many occasions (if any) have you taken cocaine in any other form (for example, powder or freebase)? (Mark one circle for each line.)

	0	1-2	3-5	6-9	10-19	20-39	40+
a. In your lifetime	○	○	○	○	○	○	○
b. During the last 12 months	○	○	○	○	○	○	○
c. During the last 30 days	○	○	○	○	○	○	○

41. How often, if ever, do you usually do the following? (Mark one circle for each line.)

	Never	Tried once or twice	Less than once a month	1-3 times a month	Once a week or more
a. Drink alcohol and take other drugs at the same time	○	○	○	○	○
b. Take steroids for body building	○	○	○	○	○
c. Use drugs or alcohol before school or between classes	○	○	○	○	○
d. Use methamphetamines (meth, crank, or speed)	○	○	○	○	○

42. When (if ever) did you FIRST do each of the following things? (Mark one circle for each line.)

	Never	Grade 6 or below	Grade 7 or 8	Grade 9	Grade 10	Grade 11	Grade 12
a. Smoke cigarettes on a daily basis	○	○	○	○	○	○	○
b. Try an alcoholic beverage--more than just a few sips	○	○	○	○	○	○	○
c. Try marijuana or hashish	○	○	○	○	○	○	○
d. Try cocaine or "crack"	○	○	○	○	○	○	○
e. Smoke your first cigarette	○	○	○	○	○	○	○
f. Drink enough to feel drunk or very high	○	○	○	○	○	○	○
g. Use methamphetamines	○	○	○	○	○	○	○

43. Have you had any drug education courses or lectures in school?

- ○ Yes
- ○ No
- ○ No and I wish I had

> -- **GO TO QUESTION #45**

44. How many of the following drug education experiences have you had in school? (Mark all that apply.)

- ○ A special course about drugs
- ○ Films, lectures, or discussions in one of my regular courses
- ○ Films or lectures outside of my regular courses
- ○ Special discussions ("rap" groups) about drugs
- ○ Peer counseling
- ○ Training (such as role playing) in how to resist peer pressure

45. How much pressure have you felt from friends to...
(Mark one circle for each line.)

	None	A little	Some	A lot
a. Smoke cigarettes	○	○	○	○
b. Drink alcohol	○	○	○	○
c. Smoke marijuana	○	○	○	○
d. Use other drugs	○	○	○	○

46. During the LAST TWO WEEKS, how many times (if any) have you driven a car, truck, or motorcycle?

- ○ None--**GO TO QUESTION #48**
- ○ Once
- ○ Twice
- ○ 3-5 times
- ○ 6-9 times
- ○ 10 or more times

47. During the LAST TWO WEEKS, how many times (if any) have you driven a car, truck, or motorcycle after... (Mark one circle for each line.)

	None	Once	Twice	3-5 times	6-9 times	10 or more times
a. Drinking alcohol	○	○	○	○	○	○
b. Having 5 or more drinks in a row	○	○	○	○	○	○
c. Using drugs (e.g., marijuana, cocaine, etc.)	○	○	○	○	○	○

48. During the LAST TWO WEEKS, how many times (if any) have you been a passenger in a car... (Mark one circle for each line.)

	None	Once	Twice	3-5 times	6-9 times	10 or more times
a. When the driver had been drinking	○	○	○	○	○	○
b. When you think the driver had 5 or more drinks	○	○	○	○	○	○
c. When the driver had been using drugs (e.g., marijuana, cocaine, etc.)	○	○	○	○	○	○

The next questions are about accidents you may have been involved in during the last 12 months. When we ask if you were injured as a result of an accident, we are only interested in injuries which were bad enough to cause bleeding, a broken bone, loss of consciousness, or a large bruise.

49. During the last 12 months, have you been involved in an accident while...

	Yes	No
a. Riding a bicycle	Ⓨ	Ⓝ
If YES, were you injured?	Ⓨ	Ⓝ
Had anyone involved been drinking alcohol?	Ⓨ	Ⓝ
b. Driving or riding in a car	Ⓨ	Ⓝ
If YES, were you injured?	Ⓨ	Ⓝ
Had anyone involved been drinking alcohol?	Ⓨ	Ⓝ
c. Driving or riding on another type of motorized vehicle, such as a motorcycle or all-terrain vehicle	Ⓨ	Ⓝ
If YES, were you injured?	Ⓨ	Ⓝ
Had anyone involved been drinking alcohol?	Ⓨ	Ⓝ
d. Engaged in an active sport	Ⓨ	Ⓝ
If YES, were you injured?	Ⓨ	Ⓝ
Had anyone involved been drinking alcohol?	Ⓨ	Ⓝ

The next questions are about family planning, sexual activity, and birth control.

50. Some teenagers have had sex and others have not. At any time in your life, have you ever had sexual intercourse (that is, making love, having sex, or going all the way)?

- ○ Yes
- ○ No -- GO TO QUESTION #62

51. If YES, how old were you the first time you had intercourse?

- ○ 10 years old or younger
- ○ 11 years old
- ○ 12 years old
- ○ 13 years old
- ○ 14 years old
- ○ 15 years old
- ○ 16 years old
- ○ 17 years old
- ○ 18 years old
- ○ 19 years old or older

52. Thinking back to the FIRST time you had intercourse, was any method of birth control used?

- ○ Yes → If YES, what method of birth control was used?
  - ○ Birth control pills
  - ○ Condoms (rubbers) only
  - ○ Foam or suppository only
  - ○ Foam and condoms
  - ○ Diaphragm
  - ○ IUD
  - ○ Withdrawal/pulling out
  - ○ Don't know
  - ○ Other (Specify: _____)
- ○ No → If NO, how long did you wait to use birth control after you started having intercourse?
  - ○ Less than one month
  - ○ 1-5 months
  - ○ 6 months or more
  - ○ Have never used birth control

53. In the last four weeks, how many times have you had intercourse?

- ○ None
- ○ Once
- ○ Twice
- ○ 3 times
- ○ 4 times
- ○ 5 or more times

54. Thinking back to the LAST time you had intercourse, was any method of birth control used?

- ○ Yes
- ○ No

If YES, what method of birth control was used?

- ○ Birth control pills
- ○ Condoms (rubbers) only
- ○ Foam or suppository only
- ○ Foam and condoms
- ○ Diaphragm
- ○ IUD
- ○ Withdrawal/pulling out
- ○ Don't know
- ○ Other (Specify: _____)

Where did you or your partner get this method?

- ○ School clinic
- ○ Drug store or supermarket
- ○ Family planning clinic (e.g., County Health Department)
- ○ Private doctor
- ○ Friend or relative
- ○ Don't know
- ○ Other (Where? _____)

55. In general, how often do you and/or your partner use a birth control method?

- ○ Always
- ○ Quite often
- ○ Sometimes
- ○ Rarely
- ○ Never

56. If you have ever had sex without using birth control, what was the main reason? (Mark one.)

- ○ I just didn't think of it
- ○ I didn't think I/she would get pregnant
- ○ Having sex was unexpected/no time to prepare
- ○ I want/she wants to get pregnant
- ○ My partner does not want to use birth control
- ○ It is wrong to use birth control
- ○ I didn't know how to get birth control
- ○ It is hard to get to a clinic or drugstore
- ○ I was embarrassed to try to get birth control
- ○ I cculdn't afford to get birth control
- ○ My parents are against using birth control
- ○ We were worried about side effects of birth control
- ○ It is my partner's problem, not mine

FEMALES ONLY ANSWER QUESTIONS 57-59

57. How many times, if any, have you been pregnant? (Be sure to count all your pregnancies, whether they ended in miscarriage, stillbirth, abortion, or live birth.)

- ○ None
- ○ Once
- ○ Twice
- ○ 3 or more times

58. Have you been pregnant during the past year?

- ○ Yes
- ○ No

59. Have you ever given birth to a child?

- ○ Yes
- ○ No

If YES, in what month of your pregnancy did you begin prenatal care? (If you have had more than one child, answer for your most recent child.)

○ First	○ Fifth	○ Ninth
○ Second	○ Sixth	○ Had no prenatal care
○ Third	○ Seventh	
○ Fourth	○ Eighth	

Did your most recent child weigh less than 5½ pounds?

○ Yes ○ No ○ Don't know

MALES ONLY ANSWER QUESTIONS 60-61

60. How many times, if any, have you gotten a girl pregnant? (Be sure to count all pregnancies, whether they ended in miscarriage, stillbirth, abortion, or live birth.)

- ○ None
- ○ Once
- ○ Twice
- ○ 3 or more times
- ○ Don't know

61. Have you gotten a girl pregnant during the past year?

- ○ Yes
- ○ No
- ○ Don't know

FEMALES AND MALES, PLEASE CONTINUE WITH QUESTION 62.

62. Would you say that the amount of accurate information on sex and reproduction given to the average young person today is:

- ○ More than is needed
- ○ Just about right
- ○ Not enough

63. In your own case, have you ever talked with either or both of your parents about:

	Yes	No
a. The female monthly cycle--that is, the menstrual cycle	(Y)	(N)
b. How pregnancy occurs	(Y)	(N)
c. Methods of birth control	(Y)	(N)
d. How to resist pressure to have sex	(Y)	(N)

55

64. **Has anyone ever encouraged you to delay having sexual intercourse until you are older?**

- ○ No -- **GO TO QUESTION #66**
- ○ Yes ⟶ **If YES, who gave you this encouragement?** (Mark all that apply.)

  - ○ Friend
  - ○ Girlfriend or boyfriend
  - ○ Mother
  - ○ Father
  - ○ School counselor or teacher
  - ○ School clinic staff
  - ○ Doctor's office or health clinic
  - ○ Minister, rabbi or other religious person
  - ○ Mass media (radio, TV, newspaper)
  - ○ Other (Who?_____)

65. **Did this encouragement influence you to delay having sexual intercourse?**

- ○ No
- ○ Yes ⟶ **If YES, whose encouragement was most important to you?** (Mark one.)

  - ○ Friend
  - ○ Girlfriend or boyfriend
  - ○ Mother
  - ○ Father
  - ○ School counselor or teacher
  - ○ School clinic staff
  - ○ Doctor's office or health clinic
  - ○ Minister, rabbi or other religious person
  - ○ Mass media (radio, TV, newspaper)
  - ○ Other (Who?_____)

66. **What (if anything) do you do to protect yourself from getting a sexually transmitted disease such as gonorrhea, genital warts, chlamydia, trich, herpes, syphilis or HIV/AIDS?**

- ○ Use no protection
- ○ Use condoms
- ○ Use foam, jelly or suppositories
- ○ Practice abstinence (do not have sex)
- ○ Other (What?_____)

67. **Have you ever had a sexually transmitted disease?**

- ○ Yes
- ○ No
- ○ Don't know

68. **People differ in whether or not they disapprove of people doing certain things. Do YOU disapprove of people doing each of the following?** (Mark one circle for each line.)

	Don't disapprove	Disapprove	Strongly disapprove
a. Having sexual intercourse before marriage	○	○	○
b. Having children before finishing high school	○	○	○
c. Having sexual intercourse while in high school (grades 9-12)	○	○	○
d. Getting married before finishing high school	○	○	○

69. **Do you agree or disagree with each of the following statements about how becoming a parent at this time would affect your life?** (Mark one circle for each line.)

	Strongly agree	Agree	Disagree	Strongly disagree
a. Becoming a parent at this time would make my life more meaningful	○	○	○	○
b. Becoming a parent at this time would make it difficult to finish school and get a good job	○	○	○	○
c. Becoming a parent at this time would give me something to be really proud of	○	○	○	○
d. Becoming a parent at this time would interfere with my social life	○	○	○	○

70. **How difficult is it for young people (under the age of 18) in your community to get birth control?**

- ○ Impossible
- ○ Very difficult
- ○ Somewhat difficult
- ○ Not difficult at all
- ○ Don't know

The next questions relate to how you have been feeling recently.

71. Overall during the past 12 months, how much were you distressed by... (Mark one circle for each line.)

	Not at all	A little bit	Moderately	Quite a bit	Extremely	Don't know
a. Feeling hopeless about the future	○	○	○	○	○	○
b. Feeling low in energy or slowed down	○	○	○	○	○	○
c. Blaming yourself for things	○	○	○	○	○	○

72. Have you ever been so down that you THOUGHT about seriously hurting or killing yourself?

○ Yes
○ No

73. Have you ever been so down that you TRIED to seriously hurt or kill yourself?

○ Yes
○ No

If you answered NO to BOTH #72 and #73, GO TO QUESTION #75.

74. Did you ever talk to anyone about these things?

○ Yes → If YES, who did you talk to? (Mark all that apply.)
- ○ School counselor
- ○ Other counselor or therapist
- ○ Doctor or nurse practitioner
- ○ Family member or friend
- ○ Other (Who: _____)

○ No → If NO, why didn't you talk to anyone? (Mark all that apply.)
- ○ Didn't know where to go
- ○ My parents couldn't pay for it
- ○ Too embarrassing
- ○ Didn't think I needed it
- ○ Other (Why: _____)

75. We are interested in your awareness of any special efforts in your community during the last year to provide information about health. These could be broadcasts on TV or radio, newspaper articles, posters and other information in your school, at your doctor's office or health clinic, information posted at a local community center, teen club, or any other efforts that come to mind.

Have you been aware of community efforts to provide information about...

a. Tobacco use ○ Yes ○ No

If YES, where was the information given? (Mark all that apply.)
- ○ In the mass media (radio, TV, newspaper)
- ○ At school
- ○ At a doctor's office or health clinic
- ○ At a local community center
- ○ Other

b. Alcohol use ○ Yes ○ No

If YES, where was the information given? (Mark all that apply.)
- ○ In the mass media (radio, TV, newspaper)
- ○ At school
- ○ At a doctor's office or health clinic
- ○ At a local community center
- ○ Other

c. Drug use ○ Yes ○ No

If YES, where was the information given? (Mark all that apply.)
- ○ In the mass media (radio, TV, newspaper)
- ○ At school
- ○ At a doctor's office or health clinic
- ○ At a local community center
- ○ Other

d. Teenage pregnancy prevention ○ Yes ○ No

If YES, where was the information given? (Mark all that apply.)
- ○ In the mass media (radio, TV, newspaper)
- ○ At school
- ○ At a doctor's office or health clinic
- ○ At a local community center
- ○ Other

75. (Continued) Have you been aware of community efforts to provide information about...

e. Suicide prevention ○ Yes ○ No

If YES, where was the information given? (Mark all that apply.)
- ○ In the mass media (radio, TV, newspaper)
- ○ At school
- ○ At a doctor's office or health clinic
- ○ At a local community center
- ○ Other

f. Self-esteem or liking yourself better ○ Yes ○ No

If YES, where was the information given? (Mark all that apply.)
- ○ In the mass media (radio, TV, newspaper)
- ○ At school
- ○ At a doctor's office or health clinic
- ○ At a local community center
- ○ Other

76. We are also interested in activities that teens may be involved in to improve their health. These activities could be going to a class, talking to a doctor or nurse, taking part in an organized event like a contest or jogging race, being part of a special program like peer counseling, teen theater, or a support group.

During the last year, have you participated in activities relating to...

a. Tobacco use ○ Yes ○ No

If YES, what kinds of activities were they? (Mark all that apply.)
- ○ Going to a class
- ○ Talking to a doctor or nurse
- ○ Organized event like a contest
- ○ Special program like peer counseling or teen theater
- ○ Other

b. Alcohol use ○ Yes ○ No

If YES, what kinds of activities were they? (Mark all that apply.)
- ○ Going to a class
- ○ Talking to a doctor or nurse
- ○ Organized event like a contest
- ○ Special program like peer counseling or teen theater
- ○ Other

76. (Continued) Have you participated in activities relating to...

c. Drug use ○ Yes ○ No

If YES, what kinds of activities were they? (Mark all that apply.)
- ○ Going to a class
- ○ Talking to a doctor or nurse
- ○ Organized event like a contest
- ○ Special program like peer counseling or teen theater
- ○ Other

d. Teenage pregnancy prevention ○ Yes ○ No

If YES, what kinds of activities were they? (Mark all that apply.)
- ○ Going to a class
- ○ Talking to a doctor or nurse
- ○ Organized event like a contest
- ○ Special program like peer counseling or teen theater
- ○ Other

e. Suicide prevention ○ Yes ○ No

If YES, what kinds of activities were they? (Mark all that apply.)
- ○ Going to a class
- ○ Talking to a doctor or nurse
- ○ Organized event like a contest
- ○ Special program like peer counseling or teen theater
- ○ Other

f. Self-esteem or liking yourself better ○ Yes ○ No

If YES, what kinds of activities were they? (Mark all that apply.)
- ○ Going to a class
- ○ Talking to a doctor or nurse
- ○ Organized event like a contest
- ○ Special program like peer counseling or teen theater
- ○ Other

77. **We are interested in where you have gone for different kinds of health care DURING THE PAST YEAR. For each service listed below, please mark if you received this type of care at a school-based Teen Health Center, from a health care provider outside of school, or not at all. (You may mark more than one circle for each line.)**

	School-based Teen Health Center	Health care provider outside of school	Not at all
MEDICAL SERVICES			
a. Care for minor illnesses	○	○	○
b. Care for minor injuries	○	○	○
c. Medications	○	○	○
d. Immunizations	○	○	○
e. General physical exam	○	○	○
f. Sports physical	○	○	○
REPRODUCTIVE HEALTH SERVICES			
g. Problems with menstrual period	○	○	○
h. Birth control information	○	○	○
i. Birth control supplies or prescriptions	○	○	○
j. Pregnancy test	○	○	○
k. Sexually transmitted disease (STD) information (herpes, gonorrhea, etc.)	○	○	○
l. Protection against STD's (condoms or condom coupons)	○	○	○
m. Tests or treatment for STD's	○	○	○
COUNSELING			
n. Family problems	○	○	○
o. Problems with friends	○	○	○
p. Emotional distress (depression, anger, stress)	○	○	○
q. Sexual issues (e.g., peer pressure, sexual abuse)	○	○	○
r. School problems	○	○	○
s. Alcohol or drug problems	○	○	○

If there is no Teen Health Center at your school, stop here. If there is a Teen Health Center at your school, please answer the remaining questions.

78. **Have you ever been to the Teen Health Center for any reason?**

- ○ Yes
- ○ No

If NO, what would you say is the most important reason for not using it? (Mark one.)

- ○ Did not know about it
- ○ No health problems
- ○ Received health care from other sources
- ○ Parents would not give permission
- ○ Did not want others to see me going

If you have never been to the Teen Health Center at your school, GO TO QUESTION #83.

79. **How many times have you EVER been to the Teen Health Center?**

- ○ Once or twice
- ○ 3-5 times
- ○ 6-8 times
- ○ More than 8 times

80. **Since school started THIS FALL, how many times have you been to the Teen Health Center?**

- ○ None
- ○ Once or twice
- ○ 3-5 times
- ○ 6-8 times
- ○ More than 8 times

81. **Why do you use the Teen Health Center? (Mark all that apply.)**

- ○ The people there really care about me
- ○ My friends told me the clinic was good
- ○ The care I get there is helpful
- ○ It's easy to get to
- ○ It has the best hours
- ○ I have no other place to go
- ○ It's the cheapest place I know about

59

82. How much do you agree or disagree with the following statements? (Mark one circle for each line.)

	Strongly agree	Agree	Disagree	Strongly disagree
a. I do not have to wait long to be seen at the Teen Health Center	○	○	○	○
b. The Teen Health Center staff is friendly	○	○	○	○
c. The Teen Health Center staff seems well-trained and capable	○	○	○	○
d. I feel confident that my medical record will not be shared with anyone outside of the Teen Health Center staff	○	○	○	○
e. I trust the Teen Health Center staff	○	○	○	○
f. The Teen Health Center makes it easier to get the health care I need	○	○	○	○
g. My health is better because of the Teen Health Center	○	○	○	○

83. How much do you agree or disagree with the following statements? (Mark one circle for each line.)

	Strongly agree	Agree	Disagree	Strongly disagree
a. I do not think there should be a Teen Health Center at our school	○	○	○	○
b. I have friends who have gotten help at the Teen Health Center	○	○	○	○
c. The Teen Health Center is easy to get to	○	○	○	○
d. My parents do not want me to use the Teen Health Center	○	○	○	○
e. I have certain health problems that cannot be taken care of at the Teen Health Center	○	○	○	○
f. I am satisfied with the Teen Health Center	○	○	○	○

84. Have you ever participated in health education given by the Teen Health Center staff (clinic, classroom, or assembly)?

- ○ Yes
- ○ No

If YES, which types?
(Mark all that apply.)

- ○ Nutrition and weight control
- ○ Eating disorders (anorexia, bulimia)
- ○ Drug or alcohol abuse prevention
- ○ Smoking prevention
- ○ AIDS prevention
- ○ Family life or sex education
- ○ Other
  (What? _____)

85. Do you think you will use the Teen Health Center in the future?

- ○ Yes
- ○ No
- ○ Don't know

86. What is the best thing the Teen Health Center has done for you?

_____
_____
_____
_____
_____
_____
_____

87. If you have had a bad experience with the Teen Health Center, please describe it below.

_____
_____
_____
_____
_____
_____
_____

If this survey has raised concerns about depression or suicide, alcohol or drug abuse, sex, or any other issues, please speak to a school counselor or other trusted adult.

THANK YOU FOR

YOUR PARTICIPATION

APPENDIX II: DEFINITION OF VARIABLES

Based on the Adolescent Health Survey, we used the following definitions to describe the student population.

Emotional Health

- Self-esteem -- we employed the Rosenburg Self-Esteem Scale, and designated those who scored in the bottom third as having low self-esteem, for purposes of comparison within this study population.
- Distress -- the Distress Scale was constructed from three variables -- level of hopelessness, level of self-blame, and level of energy. We defined high distress as having at least moderate levels of these three symptoms.
- Suicide thought or attempts -- students were asked to respond to yes or no questions about whether they had ever thought about seriously hurting or killing themselves or tried to seriously hurt or kill themselves.

Reproductive Health

- Sexually active students -- those reporting that they had ever had sexual intercourse.
- Currently sexually active students -- those reporting that they had intercourse at least once in the last four weeks.
- Birth control used -- included students reporting use of a valid method of birth control, including birth control pills, diaphragm, IUD, condoms, or foam and condoms. Students were surveyed for birth control use at their first and most recent intercourse.
- Regular birth control users -- defined as students who indicated they used valid birth control always or quite often.

Substance Use

- Cigarette smokers -- students indicating that they had smoked one to five cigarettes or more per day during the past 30 days.
- Binge drinkers -- students who had five or more drinks in a row at least once in the past two weeks.
- Marijuana, crack, cocaine use -- at least once in the past 12 months.

School attendance and academic performance

- Missed school due to illness or because skipped -- students who had ever (once or more) missed school or classes for these reasons during the last four weeks.
- Grade Point Average (GPA) -- we divided students into those with a self-reported current GPA of B or better versus those with a B- or below.

APPENDIX III: FREQUENCIES BY GRADE AND GENDER -- ALL SCHOOLS-1992

See Appendix I for definition of variables

*NOTE: When gender differences are statistically significant (less than a 5% likelihood that the difference was due to chance) this is noted in the tables as a p value.

TABLE A: SELF-ESTEEM

GRADE	% LOW	% MODERATE	% HIGH
9th grade females	39.9 *	37.8 *	22.2 *
9th grade males	22.6 *	41.4 *	36.0 *
*p=0.000			
10th grade females	37.1 *	36.2 *	26.7 *
10th grade males	24.0 *	37.5 *	38.5 *
*p=0.000			
11th grade females	35.4 *	36.6 *	28.0 *
11th grade males	21.4 *	38.8 *	39.8 *
*p=0.000			
12th grade females	34.0 *	32.5 *	33.5 *
12th grade males	20.9 *	34.9 *	44.3 *
*p=0.000			
All females	36.6 *	35.8 *	27.6 *
All males	22.3 *	38.1 *	39.6 *
*p=0.000			

TABLE B: DISTRESS

GRADE	% HIGH DISTRESS	% LOW DISTRESS
9th grade females	48.2 *	51.8 *
9th grade males	22.1 *	77.9 *
*p=0.000		
10th grade females	57.7 *	42.3 *
10th grade males	29.6 *	70.4 *
*p=0.000		
11th grade females	64.7 *	35.3 *
11th grade males	39.8 *	60.2 *
*p=0.000		
12th grade females	61.1 *	38.9 *
12th grade males	40.5 *	59.5 *
*p=0.000		
All females	58.1 *	41.9 *
All males	33.2 *	66.8 *
*p=0.000		

TABLE C: SUICIDE THOUGHTS/ATTEMPTS

GRADE	% THOUGHT ABOUT HURTING/KILLING SELF	% TRIED TO HURT/KILL SELF
9th grade females	45.0 *	22.8 *
9th grade males	25.4 *	8.8 *
*p=0.000		
10th grade females	49.2 *	22.0 *
10th grade males	24.9 *	9.4 *
*p=0.000		
11th grade females	50.2 *	22.2 *
11th grade males	31.1 *	11.5 *
*p=0.000		
12th grade females	49.3 *	21.0 *
12th grade males	30.2 *	10.7 *
*p=0.000		
All females	48.6 *	22.0 *
All males	27.8 *	10.1 *
*p=0.000		

TABLE D: SUBSTANCE USE INDICATORS

GRADE	% DAILY CIGARETTE SMOKER	% BINGE DRINKER	% USED MARIJUANA THIS YEAR	% USED CRACK THIS YEAR	% USED COCAINE THIS YEAR
9th grade females	13.3	15.5	17.0	3.3	2.6
9th grade males	13.3	16.3	19.6	3.3	3.6
10th grade females	13.7	15.4	21.9 *	2.2 *	2.4 *
10th grade males	11.3	16.4	18.2 *	4.6 *	4.9 *
p value			*p=0.052	*p=0.006	*p=0.007
11th grade females	15.2	16.4 *	24.6	2.6 *	4.0 *
11th grade males	16.3	22.8 *	27.3	5.0 *	6.4 *
p value		*p=0.002		*p=0.017	*p=0.037
12th grade females	17.6	18.9 *	28.8	2.7 *	4.3
12th grade males	18.2	27.7 *	31.8	5.2 *	6.2
p value		*p=0.000		*p=0.016	
All females	14.9	16.5 *	23.1	2.7 *	3.3 *
All males	14.6	20.6 *	23.9	4.5 *	5.3 *
p value		*p=0.000		*p=0.000	*p=0.000

TABLE E: REPRODUCTIVE HEALTH INDICATORS

GRADE	% Ever Had Sex	% Had Sex in Last 4 Weeks	% Used Birth Control the First Time	% Used Birth Control the Last Time	% Don't Use Birth Control Regularly
9th grade females	30.9 *	15.3	60.3	59.0	40.5
9th grade males	40. 8 *	17.4	55.0	60.7	35.2
p value	*p=0.000				
10th grade females	38.6 *	19.4	57.4	61.9	34.7
10th grade males	43.9 *	22.1	61.2	67.4	31.9
p value	*p=0.027				
11th grade females	53.7	29.0	66.8	68.6	25.8
11th grade males	54.5	27.9	63.6	63.8	30.3
12th grade females	61.0	38.2	64.2	64.0	27.6
12th grade males	65.6	36.8	59.2	64.6	30.5
All females	45.8 *	25.2	62.6	64.0	30.8
All males	50.7 *	25.8	60.2	64.4	31.6
p value	*p=0.000				

TABLE F: ACADEMIC AND ATTENDANCE INDICATORS

GRADE	% GPA of B or Better	% Missed School Due to Illness	% Missed School Because Skipped
9th grade females	65.9 *	39.8	11.6 *
9th grade males	50.5 *	40.7	19.0 *
p value	*p=0.000		*p=0.005
10th grade females	71.8 *	43.9	14.5
10th grade males	57.6 *	38.0	19.2
p value	*p=0.000		
11th grade females	71.3 *	48.1 *	22.5
11th grade males	57.3 *	33.4 *	24.1
p value	*p=0.000	*p=0.000	
12th grade females	75.5 *	45.8 *	27.7
12th grade males	54.9 *	37.2 *	31.5
p value	*p=0.000	*p=0.008	
All females	71.2 *	44.4 *	18.9 *
All males	55.3 *	37.3 *	23.3 *
p value	*p=0.000	*p=0.000	*p=0.000

APPENDIX IV - IMPACT VARIABLES

STUDY SITE A

Table 1: Demographics

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Female	48.9	48.9	0.0	49.0	50.2	1.2	-1.2	neutral
Grade	10.4	10.4	0.0	10.3	10.4	0.1	-0.1	neutral
Mother graduated from high school	86.9	88.6	1.7	89.2	88.6	-0.6	2.3	neutral
Father graduated from high school	88.8	90.1	1.3	90.9	90.5	-0.4	1.7	neutral
On food stamps	6.1	8.7	2.6	3.7	4.3	0.6	2.0	neutral

Table 2: School Performance

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Missed one or more days due to illness	37.0	36.9	-0.1	46.7	46.8	0.1	-0.2	pos
Missed one or more days - skipped	19.3	30.3	11.0	26.2	22.1	-4.1	15.1	neg*
GPA of B or better	70.0	72.4	2.4	54.5	63.8	9.3	-6.9	neutral
Plan to complete college	71.0	70.8	-0.2	67.0	71.1	4.1	-4.3	neutral

* indicates p value < 0.05

Table 3: Health Care Utilization

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
In fair/poor health	10.6	8.8	-1.8	6.0	4.6	-1.4	-0.4	neg
Saw dentist in the last year	70.3	75.0	4.7	76.2	80.8	4.6	0.1	pos
Saw health care provider in past year	74.1	77.7	3.6	76.6	77.5	0.9	2.7	pos
ER was site of last health care	12.1	10.7	-1.4	14.7	11.9	-2.8	1.4	neg
Missed school to get health care	28.0	25.1	-2.9	26.9	23.9	-3.0	0.1	neg
Treated in ER in the past year	27.9	26.4	-1.5	31.8	29.3	-2.5	1.0	neg
Got health care when needed	83.3	83.8	0.5	85.8	85.2	-0.6	1.1	pos
Could not afford health care	4.7	4.5	-0.2	2.4	2.5	0.1	-0.3	pos
Would go to ER for care now	5.2	4.5	-0.7	6.9	4.8	-2.1	1.4	neg
Difficult to get birth control	21.7	29.9	8.2	29.4	38.0	8.6	-0.4	pos

STUDY SITE A

Table 4: Substance use

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Smoker	17.5	14.1	-3.4	10.8	12.0	1.2	-4.6	pos
Binge drinker	18.5	14.3	-4.2	13.3	14.5	1.2	-5.4	pos*
Marijuana use, past year	23.1	19.9	-3.2	15.8	19.5	3.7	-6.9	pos*
Crack use, past year	2.6	3.0	0.4	1.6	2.6	1.0	-0.6	pos
Cocaine use, past year	3.7	3.5	-0.2	2.9	3.0	0.1	-0.3	pos
Drug use at school	16.1	15.0	-1.1	11.0	14.0	3.0	-4.1	pos
Methamphetamine use	10.1	6.4	-3.7	6.8	5.3	-1.5	-2.2	pos

* indicates p value < 0.05

Table 5: Emotional Health

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Low self-esteem	25.8	29.6	3.8	27.7	26.9	-0.8	4.6	neg
High distress	43.8	45.0	1.2	43.2	44.6	1.4	-0.2	pos
Thought of suicide	35.9	36.2	0.3	35.5	34.6	-0.9	1.2	neg
Attempted suicide	16.4	16.1	-0.3	14.4	13.1	-1.3	1.0	neg
Talked about suicide	52.5	52.0	-0.5	52.1	56.3	4.2	-4.7	neg

STUDY SITE A

Table 6: Reproductive Health Attitudes

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Disapprove of sex before marriage	28.7	33.8	5.1	30.0	29.5	-0.5	5.6	pos
Disapprove of sex in high school	34.0	38.2	4.2	32.5	34.6	2.1	2.1	pos
Becoming parent makes life more meaningful	12.4	13.6	1.2	12.7	14.0	1.3	-0.1	pos
Proud of becoming a parent	14.4	14.1	-0.3	14.4	15.2	0.8	-1.1	pos

Table 7: Dialogue with Parents

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Re: Menstrual cycle	54.1	53.1	-1.0	55.5	56.7	1.2	-2.2	neg
Re: Pregnancy	52.9	52.3	-0.6	53.9	52.9	-1.0	0.4	pos
Re: BC method	45.0	43.6	-1.4	45.1	45.8	0.7	-2.1	neg
Re: Resisting sex	38.3	36.9	-1.4	39.2	40.5	1.3	-2.7	neg

Table 8: Sexual Activity

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Ever had sex	44.2	41.2	-3.0	43.7	42.5	-1.2	-1.8	pos
Had sex 14 years old or younger	56.4	63.9	7.5	54.6	52.9	-1.7	9.2	neutral
Had sex in the past 4 weeks	28.1	21.6	-6.5	22.4	21.2	-1.2	-5.3	pos

STUDY SITE A

Table 9: Contraceptive Behavior

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Used valid BC the first time	56.2	55.4	-0.8	58.7	67.1	8.4	-9.2	neg
Waited 6 months or more before using BC	29.3	22.7	-6.6	24.9	16.2	-8.7	2.1	neg
Used valid BC last time	68.2	62.4	-5.8	62.2	68.5	6.3	-12.1	neg*
Birth Control used sometimes or less	33.0	31.3	-1.7	34.8	31.3	-3.5	1.8	neg

* indicates p value < 0.05

Table 10: Reproductive Health Outcomes

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Ever pregnant	3.4	4.1	0.7	4.2	4.4	0.2	0.5	neg
Pregnant in the past year	2.3	2.7	0.4	3.2	3.0	-0.2	0.6	neg
Ever gave birth	0.8	0.9	0.1	0.8	0.6	-0.2	0.3	neg
Ever gotten a girl pregnant	2.0	4.1	2.1	2.6	3.4	0.8	1.3	neg
Gotten a girl pregnant in the past year	2.0	2.4	0.4	2.0	2.2	0.2	0.2	neg
Ever had an STD	5.3	4.3	-1.0	2.3	2.1	-0.2	-0.8	pos

STUDY SITE B

Table 1: Demographics

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Female	49.1	42.9	-6.2	48.0	49.7	1.7	-7.9	neutral
Grade	10.2	10.3	0.1	10.4	10.3	-0.1	0.2	neutral
Mother graduated from high school	85.9	83.3	-2.6	91.6	91.1	-0.5	-2.1	neutral
Father graduated from high school	88.0	88.6	0.6	91.4	92.0	0.6	0.0	neutral
On food stamps	7.5	12.2	4.7	7.6	7.8	0.2	4.5	neutral

Table 2: School Performance

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Missed one or more days due to illness	41.5	40.7	-0.8	43.0	35.1	-7.9	7.1	neg
Missed one or more days - skipped	19.2	25.0	5.8	23.1	15.8	-7.3	13.1	neg*
GPA of B or better	64.5	58.4	-6.1	65.1	69.0	3.9	-10.0	neutral
Plan to complete college	64.7	60.4	-4.3	69.5	71.6	2.1	-6.4	neutral

* indicates p value < 0.05

Table 3: Health Care Utilization

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
In fair/poor health	6.6	10.6	4.0	6.7	8.6	1.9	2.1	neg
Saw dentist in the last year	63.9	60.2	-3.7	73.3	70.9	-2.4	-1.3	neg
Saw health care provider in past year	79.0	76.4	-3.5	81.0	71.4	-9.6	6.1	pos
ER was site of last health care	11.8	12.4	0.6	7.3	11.9	4.6	-4.0	pos
Missed school to get health care	34.0	38.6	4.6	32.4	37.1	4.7	-0.1	pos
Treated in ER in the past year	29.8	29.2	-0.6	27.0	31.9	4.9	-5.5	pos
Got health care when needed	85.0	82.1	-2.9	84.6	82.5	-2.1	-0.8	neg
Could not afford health care	4.6	5.6	1.0	3.1	7.1	4.0	-3.0	pos
Would go to ER for care now	2.1	5.3	3.2	5.0	5.2	0.2	3.0	neg
Difficult to get birth control	18.9	28.1	9.2	17.7	26.3	8.6	0.6	neg

STUDY SITE B

Table 4: Substance use

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Smoker	14.9	18.3	3.4	10.8	14.6	3.8	-0.4	pos
Binge drinker	25.3	24.3	-1.0	16.1	18.1	2.0	-3.0	pos
Marijuana use, past year	24.2	31.0	6.8	17.7	25.5	7.8	-1.0	pos
Crack use, past year	3.2	4.0	0.8	1.7	3.0	1.3	-0.5	pos
Cocaine use, past year	5.2	5.4	0.2	2.4	2.8	0.4	-0.2	pos
Drug use at school	19.4	25.6	6.2	9.3	12.7	3.4	2.8	neg
Methamphetamine use	9.0	10.3	1.3	5.6	7.1	1.5	-0.2	pos

Table 5: Emotional Health

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Low self-esteem	27.1	34.1	7.0	30.0	31.5	1.5	5.5	neg
High distress	44.8	42.8	-2.0	52.8	43.8	-9.0	7.0	neg
Thought of suicide	37.4	38.4	1.0	43.3	40.4	-2.9	3.9	neg
Attempted suicide	16.5	15.0	-1.5	15.5	16.1	0.6	-2.1	pos
Talked about suicide	55.5	45.5	-10.0	66.0	51.8	-14.2	4.2	pos

STUDY SITE B

Table 6: Reproductive Health Attitudes

VARIABLE (%)	Clinic School			Control School				
	Baseline	Follow-up	Change	Baseline	Follow-up	Change	Difference	pos/neg
Disapprove of sex before marriage	30.6	18.3	-12.3	27.0	24.7	-2.3	-10.0	neg*
Disapprove of sex in high school	33.6	23.5	-10.1	32.9	31.6	-1.3	-8.8	neg
Becoming parent makes life more meaningful	15.3	16.8	1.5	10.5	9.9	-0.6	2.1	neg
Proud of becoming a parent	14.3	17.4	3.1	10.4	9.8	-0.6	3.7	neg

* indicates p value < 0.05

Table 7: Dialogue with Parents

VARIABLE (%)	Clinic School			Control School				
	Baseline	Follow-up	Change	Baseline	Follow-up	Change	Difference	pos/neg
Re: Menstrual cycle	54.4	53.9	-0.5	59.2	56.0	-3.2	2.7	pos
Re: Pregnancy	51.8	56.2	4.4	56.4	58.9	2.5	1.9	pos
Re: BC method	47.0	54.8	7.8	52.3	54.7	2.4	5.4	pos
Re: Resisting sex	38.1	40.8	2.7	43.2	43.6	0.4	2.3	pos

Table 8: Sexual Activity

VARIABLE (%)	Clinic School			Control School				
	Baseline	Follow-up	Change	Baseline	Follow-up	Change	Difference	pos/neg
Ever had sex	46.2	56.3	10.1	42.9	41.7	-1.2	11.3	neg
Had sex 14 years old or younger	60.1	71.4	11.3	53.7	69.3	15.6	-4.3	neutral
Had sex in the past 4 weeks	25.9	29.8	3.9	22.0	21.1	-0.9	4.8	neg

STUDY SITE B

Table 9: Contraceptive Behavior

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Used valid BC the first time	57.3	68.6	11.3	64.3	59.2	-5.1	16.4	pos*
Waited 6 months or more before using BC	28.0	13.8	-14.2	22.6	25.9	3.3	-17.5	pos*
Used valid BC last time	63.8	71.0	7.2	73.4	69.2	-4.2	11.4	pos
Birth Control used sometimes or less	30.5	28.6	-1.9	27.2	28.3	1.1	-3.0	pos

* indicates p value < 0.05

Table 10: Reproductive Health Outcomes

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Ever pregnant	5.6	3.7	-1.9	2.9	4.4	1.5	-3.4	pos
Pregnant in the past year	3.0	2.1	-0.9	2.2	3.1	0.9	-1.8	pos
Ever gave birth	1.1	0.4	-0.7	0.0	0.6	0.6	-1.3	pos
Ever gotten a girl pregnant	3.2	5.2	2.0	4.6	3.3	-1.3	3.3	neg
Gotten a girl pregnant in the past year	2.4	4.1	1.7	4.0	1.4	-2.6	4.3	neg
Ever had an STD	4.4	4.0	-0.4	2.7	1.4	-1.3	0.9	neg

STUDY SITE C

Table 1: Demographics

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Female	50.7	49.9	-0.8	49.5	53.1	3.6	-4.4	neutral
Grade	11.0	10.9	-0.1	10.4	10.4	0.0	-0.1	neutral
Mother graduated from high school	86.8	87.7	0.9	82.5	80.7	-1.8	2.7	neutral
Father graduated from high school	87.7	85.6	-2.1	79.3	82.8	3.5	-5.6	neutral
On food stamps	5.3	7.5	2.2	10.2	10.8	0.6	1.6	neutral

Table 2: School Performance

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Missed one or more days due to illness	42.2	33.9	-8.3	52.2	43.1	-9.1	0.8	pos
Missed one or more days - skipped	23.8	18.9	-4.9	20.5	20.9	0.4	-5.3	pos
GPA of B or better	62.2	73.6	11.4	58.2	59.0	0.8	10.6	pos*
Plan to complete college	64.5	70.3	5.8	53.7	62.0	8.3	-2.5	neutral

* indicates p value < 0.05

Table 3: Health Care Utilization

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
In fair/poor health	7.3	7.7	0.4	9.6	9.0	-0.6	1.0	neg
Saw dentist in the last year	67.6	70.2	2.6	62.8	63.6	0.8	1.8	pos
Saw health care provider in past year	75.6	76.4	0.8	74.2	71.5	-2.7	3.5	pos
ER was site of last health care	13.6	13.4	-0.2	14.8	15.3	0.5	-0.7	pos
Missed school to get health care	22.7	22.1	-0.6	36.3	30.8	-5.5	4.9	neg
Treated in ER in the past year	28.6	26.8	-1.8	30.2	33.6	3.4	-5.2	pos*
Got health care when needed	80.4	83.0	2.6	81.1	80.0	-1.1	3.7	pos
Could not afford health care	6.3	6.2	-0.1	6.7	6.0	-0.7	0.6	neg
Would go to ER for care now	8.5	6.9	-1.6	4.0	6.0	2.0	-3.6	pos
Difficult to get birth control	18.4	24.1	5.7	26.4	28.3	1.9	3.8	neg

* indicates p value < 0.05

STUDY SITE C

Table 4: Substance use

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Smoker	17.7	14.0	-3.7	11.0	14.6	3.6	-7.3	pos*
Binge drinker	25.5	19.4	-6.1	22.9	21.0	-1.9	-4.2	pos
Marijuana use, past year	22.2	22.2	0.0	17.6	20.9	3.3	-3.3	pos
Crack use, past year	2.9	3.6	0.7	2.2	6.1	3.9	-3.2	pos*
Cocaine use, past year	5.8	4.9	-0.9	3.8	7.4	3.6	-4.5	pos*
Drug use at school	17.9	16.1	-1.8	15.4	18.2	2.8	-4.6	pos
Methamphetamine use	13.5	10.1	-3.4	9.7	14.2	4.5	-7.9	pos*

* indicates p value < 0.05

Table 5: Emotional Health

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Low self-esteem	31.8	26.7	-5.1	30.8	28.8	-2.0	-3.1	pos
High distress	54.3	47.8	-6.5	44.8	45.6	0.8	-7.3	pos
Thought of suicide	44.9	38.0	-6.9	42.2	42.9	0.7	-7.6	pos
Attempted suicide	17.0	15.5	-1.5	19.6	19.4	-0.2	-1.3	pos
Talked about suicide	48.3	49.0	0.7	52.4	49.2	-3.2	3.9	pos

STUDY SITE C

Table 6: Reproductive Health Attitudes

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Disapprove of sex before marriage	26.8	30.2	3.4	28.1	24.8	-3.3	6.7	pos*
Disapprove of sex in high school	30.1	34.4	4.3	31.3	27.5	-3.8	8.1	pos*
Becoming parent makes life more meaningful	14.5	15.6	1.1	12.9	14.6	1.7	-0.6	pos
Proud of becoming a parent	15.8	15.6	-0.2	12.6	14.2	1.6	-1.8	pos

* indicates p value < 0.05

Table 7: Dialogue with Parents

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Re: Menstrual cycle	56.1	58.4	2.3	53.6	55.9	2.3	0.0	none
Re: Pregnancy	54.9	55.2	0.3	50.3	51.6	1.3	-1.0	neg
Re: BC method	45.8	49.3	3.5	46.5	47.1	0.6	2.9	pos
Re: Resisting sex	40.0	43.1	3.1	40.3	38.5	-1.8	4.9	pos

Table 8: Sexual Activity

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Ever had sex	54.3	49.9	-4.4	53.3	59.2	5.9	-10.3	pos*
Had sex 14 years old or younger	47.9	51.6	3.7	60.2	54.9	-5.3	9.0	neutral
Had sex in the past 4 weeks	32.8	26.7	-6.1	28.4	34.6	6.2	-12.3	pos*

* indicates p value < 0.05

STUDY SITE C

Table 9: Contraceptive Behavior

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Used valid BC the first time	56.9	60.6	3.7	46.9	59.7	12.8	-9.1	neg
Waited 6 months or more before using BC	23.5	22.2	-1.3	32.2	25.6	-6.6	5.3	neg
Used valid BC last time	65.8	63.3	-2.5	59.7	60.5	0.8	-3.3	neg
Birth Control used sometimes or less	29.7	31.1	1.4	36.4	31.5	-4.9	6.3	neg

Table 10: Reproductive Health Outcomes

VARIABLE (%)	Clinic School			Control School			Difference	pos/neg
	Baseline	Follow-up	Change	Baseline	Follow-up	Change		
Ever pregnant	5.9	6.8	0.9	6.9	6.2	-0.7	1.6	neg
Pregnant in the past year	3.7	5.1	1.4	4.3	4.9	0.6	0.8	neg
Ever gave birth	1.3	1.8	0.5	2.3	0.9	-1.4	1.9	neg
Ever gotten a girl pregnant	6.6	4.0	-2.6	4.9	6.8	1.9	-4.5	pos
Gotten a girl pregnant in the past year	4.7	3.5	-1.2	3.2	5.9	2.7	-3.9	pos
Ever had an STD	2.7	2.5	-0.2	2.9	5.0	2.1	-2.3	pos

91

92

REFERENCES

1. Shortchanging Girls, Shortchanging America. Washington, DC: Greenberg Lake Analysis Group for the American Association of Women; 1992;4.

2. Ibid.

3. Ibid; 9.

4. Ibid; 4.

5. Rutter, M. The developmental psychopathology of depression: issues and perspectives. In Rutter M, Izard C, Reads P, eds. Depression in Young People: Developmental and Clinical Perspectives, New York: Guilford; 1986:3-30.

6. Oregon Youth Risk Behavior Survey, December, 1993. Oregon Health Division, Center for Health Statistics.

7. Ibid.

8. Marks EL, Marzke CH. Healthy Caring: A Process Evaluation of the Robert Wood Johnson Foundation's School-Based Adolescent Health Care Program. Princeton NJ: Mathtech, Inc., 1993:78-84. 26-37.

9. Ibid.

10. Dryfoos, JG. Adolescents at Risk: Prevalence and Prevention. New York: Oxford University Press; 1990:96.

11. Cheadle et al. An empirical exploration of a conceptual model for community-based health promotion, International Quarterly of Community Health Education. 1992-93; 13.

12. Effectiveness and satisfaction in antenatal care. In: Elkin M, Chalmers I, eds. Effectiveness and Satisfaction in Antenatal Care. Clinics in developmental medicine nos. 81/82. London; Spastic International Medical Publications, 1982:266-90.

13. Kirby D, Waszak CS, Ziegler J. An Assessment of Six School-Based Clinics: Services, Impact and Potential. Washington, DC: Center for Population Options; 1989.

14. Ibid; 74.

15. COMMIT Research Group. Community Intervention trial for smoking cessation (COMMIT) I & II Am J Public Health. 1995;85:183-200.

16. Bandura A. The Social Foundations of Thought and Action. Englewood Cliffs, NJ; Prentice Hall; 1986.

17. Fisher EB Jr. Editorial: The results of the COMMIT trial, Am J Public Health. 1995; 85:159-160.

18. Cheadle et al; 329.

19. Dryfoos; 228-233.

20. Marks EL, Marzke CH. Healthy Caring: A Process Evaluation of the Robert Wood Johnson Foundation's School-Based Adolescent Health Care Program. Princeton NJ: Mathtech, Inc., 1993:78-84.

21. Tokarski C. Healthier times at Ridgemont High. Hospitals & Health Networks. March. 1995;36-38.

22. Jancin, B. Directly Observed TB Therapy Makes the Grade in School Clinics. *Pediatric News*; 1995; 29 (5): 16.